

2019 – 2020 Computing Curriculum Map

Theme Key:															
	Coding and Computational thinking		Spreadsheets		Internet and Email		Art and Design		Music		Databases and graphing		Writing and Presenting		Communication and networks

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Online safety	Pictograms	Maze explorers	Animated stories	Coding	Spreadsheets
	Grouping and sorting	Lego builders				Technologies outside of school
Year 2	Coding Online safety	Spreadsheets	Questioning	Effective searching	Creating pictures	Making music
						Presenting ideas
Year 3	Online safety	Typing	Coding	Email	Branching databases	Simulation
	Spreadsheets					Graphing
Year 4	Online safety	Animation	Coding	Logo	Writing for different audiences	Effective searching
	Spreadsheets					hardware investigations
Year 5	Online safety	Databases	Coding	Game creator	3D modelling	Concept maps
	spreadsheets (Excel)					
Year 6	Online safety	Blogging	Coding	Text adventures	Networks	Quizzing
	spreadsheets (Excel)					

Year 1

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Sumer 2
<p>Online safety grouping and sorting.</p> <p>1. To log in safely and start to introduce to the children the idea of 'ownership' of their creative work.</p> <p>2. To explore the Tools section of Purple Mash and to learn about the common icons used in Purple Mash for Save, Print, Open, New. To explore the Games section on Purple Mash.</p> <p>3. To understand the importance of logging out when they have finished.</p> <p>4. To sort items using a range of criteria</p> <p>5. To sort items on the computer using the 'Grouping' activities in Purple Mash.</p> <p>Can they... Login to Purple Mash using their own login.</p> <p>Create their own avatar and understand why is it useful.</p> <p>Save work into the My Work folder in Purple Mash and understand that this is a private saving space just for their work.</p> <p>Explore the Tools section on Purple Mash and become familiar with some of the key icons, save, print, open and new.</p> <p>Explore the Games section and looked at Table Toons (2x tables).</p> <p>logout of Purple Mash when they have finished using it and know why that is important.</p>	<p>Pictograms and lego builders</p> <p>1.To understand that data can be represented in picture format</p> <p>2. To contribute to a class pictogram</p> <p>3. To use a pictogram to record the results of an experiment.</p> <p>4. To emphasize the importance of following instructions.</p> <p>5. To follow and create simple instructions on the computer.</p> <p>6. To consider how the order of instructions affects the result.</p> <p>Can they...</p> <p>Contribute to a class pictogram.</p> <p>Discuss what the pictogram shows.</p> <p>Collect data from rolling a die 20 times and recording the results.</p> <p>Represent the results as a pictogram</p> <p>Follow instructions in a computer program.</p> <p>Explain the effect of carrying out a task with no instructions.</p> <p>Understand that computers need precise instructions to follow</p> <p>Understand that correcting errors in an algorithm or program is called 'debugging'.</p>	<p>Maze explorers</p> <p>1.To be able to use the direction keys to complete the challenges successfully.</p> <p>2. To understand how to create and debug a set of instructions (algorithm).</p> <p>3. To understand how to change and extend the algorithm list. To create a longer algorithm for an activity</p> <p>Can they...</p> <p>Understand how to use the direction keys in 2Go to move forwards, backwards, left and right</p> <p>Add a unit of measurement to the direction</p> <p>Understand how to undo their last move.</p> <p>Understand how to create a simple algorithm.</p> <p>Understand how to debug their algorithm.</p> <p>Change the background images in their chosen challenge and save their new challenge.</p>	<p>Animated Stories</p> <p>1.To be introduced to e-books and to 2Create a Story.</p> <p>2. To continue a previously saved story. To add animation to a story</p> <p>3. To add sound to a story including voice recording and music the children have created.</p> <p>4. To work on a more complex story including adding backgrounds and copying and pasting pages.</p> <p>Can they...</p> <p>Understand the difference between a traditional book and an e-book</p> <p>Use the different drawing tools to create a picture on the page.</p> <p>Add text to a page and change the colour, font and size of the text</p> <p>Add an animation to their picture.</p> <p>Play the pages they have created.</p> <p>Save their changes and overwrite the file.</p> <p>Add a sound to the page.</p> <p>Add their own voice recording to the page.</p> <p>Add a background to the page</p> <p>Create their own music and add it to their page.</p>	<p>Coding</p> <p>1.Introduction to block coding on screen.</p> <p>2. Introduction to backgrounds and characters</p> <p>3. Making a character move left and right.</p> <p>4. Making a character move when clicked.</p> <p>5. Introduction to Collision Detection.</p> <p>Can they...</p> <p>Explain what a block of code is.</p> <p>Read through combined blocks of code.</p> <p>Understand that for the computer to make something happen, it needs to follow clear instructions.</p> <p>Write a program that controls how a character moves.</p> <p>Explain what is happening and write down/ talk through my code.</p> <p>Write a program that controls how a character moves and stops when clicked.</p> <p>Write a program where objects can stop moving and a sound is played when the objects collide.</p>	<p>Spreadsheets and technologies outside of school</p> <p>1.Adding images to a spreadsheet and using the image toolbox</p> <p>2. Using the 'speak' and 'count' tools in 2Calculate to count items</p> <p>3. To walk around the local community and find examples of where technology is used.</p> <p>4. To record examples of technology outside school.</p> <p>Can they...</p> <p>Navigate around a spreadsheet</p> <p>Explain what rows and columns are</p> <p>Save and open sheets</p> <p>Enter data into cells</p> <p>Use the 'move cell' tool so that images can be dragged around the spreadsheet.</p> <p>Give images a value that the spreadsheet can use to count the.</p> <p>Add the count tool to count</p> <p>Add the speak tool so that items are counted out loud</p> <p>Have considered types of technology used in and out of school</p> <p>Record 4 examples of where technology is used outside of school</p>

Year 2

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Coding and online safety</p> <ol style="list-style-type: none"> To introduce algorithms To use Repeat and Timer commands. Debugging. To explore the possible actions of different types of objects. To create a more complex program to retell a story To know how to refine searches using the search tool. To know how to share work electronically using the display boards. Have some knowledge and understanding about sharing work on Purple Mash and the Internet. <p>Can they... Explain that an algorithm is a set of instructions</p> <p>Explain that for the computer to make something happen, it needs to follow clear instructions.</p> <p>Show their computer program and point out the algorithms they created.</p> <p>Explain how to use the following terms in a computer program: Command, Repeat, Input, Output, Event, Collision Detection and Timer.</p> <p>Create a computer program including at least four of the above new coding vocabulary terms. Explain what debug (debugging) means</p> <p>Explain what they did so that their computer program did not work.</p> <p>Debug simple programs</p> <p>Create a computer program using different objects.</p> <p>Children have discussed their own experiences and understanding of what email is used for.</p>	<p>Spreadsheets</p> <ol style="list-style-type: none"> Copying and pasting total tools Using a spreadsheet to add amounts Creating a table and block graph <p>Can they... Explain what rows and columns are in a spreadsheet.</p> <p>Open, save and edit a spreadsheet.</p> <p>Add images from the image toolbox and allocate them a value.</p> <p>Use copying a pasting to help make spreadsheets</p> <p>Use tools in a spreadsheet to automatically total rows and columns</p> <p>Use a spreadsheet to solve a mathematical puzzle.</p> <p>Use images in a spreadsheet.</p> <p>Work out how much they need to pay using coins by using a spreadsheet to help calculate.</p> <p>Create a table of data on a spreadsheet.</p> <p>Use the data to create a block graph manually</p>	<p>Questioning</p> <ol style="list-style-type: none"> Show that the information provided on pictogram is of limited use beyond answering simple questions To use YES or No questions to separate information. To construct a binary tree to separate different items. To use a database to answer more complex search questions. To use the search tool to find information. <p>Can they... Understand that the information on pictograms cannot be used to answer more complicated questions.</p> <p>Have used a range of yes/no questions to separate different items.</p> <p>Understand what is meant by a binary tree</p> <p>Have designed a binary tree to sort pictures of children.</p> <p>Understand that questions are limited to 'yes' and 'no' in a binary tree.</p> <p>Understand what is meant by a database.</p> <p>Have used a database to answer simple and more complex search questions.</p>	<p>Effective searching</p> <ol style="list-style-type: none"> To understand the terminology associated with searching. To gain a better understanding about searching on the Internet. To create a leaflet to help someone search for information on the Internet. <p>Can they... Recall the meaning of key internet terms</p> <p>Have completed a quiz about the Internet.</p> <p>Identify the basic parts of a web search engine search page</p> <p>Learn to "read" a web search results page</p> <p>Search for answers to a quiz on the internet.</p> <p>Create a leaflet to consolidate their knowledge of effective Internet searching.</p>	<p>Creating pictures</p> <ol style="list-style-type: none"> To look at the impressionist style of art (Monet, Degas, Renoir). To recreate pointillist art and look at the work of pointillist artists such as Seurat. To look at the work of Piet Mondrian and recreate it using the Lines template To look at the work of William Morris and recreate it using the Patterns template. To explore surrealism and eCollage <p>Can they... Explain what is meant by impressionist art.</p> <p>Paint a Picture to create art based upon this style.</p> <p>Explain what pointillism is.</p> <p>Use 2Paint a Picture to create art based upon this style.</p> <p>Describe the main features of Piet Mondrian's work.</p> <p>Describe the main features of art that uses repeating patterns.</p> <p>Create art by repeating patterns in a variety of ways.</p> <p>Combine more than one effect in 2Paint a Picture to enhance their patterns. describe surrealist art</p>	<p>Making music/presenting ideas</p> <ol style="list-style-type: none"> To be introduced to making music digitally To add sounds to a tune they've already created to change it. To upload a sound from a bank of sounds into the Sounds section. To record their own sound and upload it into the Sounds section. To create their own tune using the sounds which they have added to the Sounds section. To make a quiz about a story or class topic. To make a fact file on a nonfiction topic. To make a presentation to the class. <p>Can they... Explore how to speed up and slow down tunes.</p> <p>Understand what happens to the tune when sounds are moved</p> <p>Consider how music can be used to express feelings.</p> <p>Understand that digital content can be represented in many forms.</p> <p>Talk about their work and make improvements to solutions based on feedback received.</p> <p>Understand that data can be structured in tables to make it useful.</p> <p>Use a variety of software to manipulate and present digital content and information.</p> <p>Collect, organise and present data and information in digital content. Create digital content to achieve a given goal by combining software packages.</p>

Year 3

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Online safety and spreadsheets</p> <ol style="list-style-type: none"> Safe passwords and communication methods. Is everything on the Internet true? To create pie charts and bar graphs. To use the 'more than', 'less than' and 'equals' tools. To introduce the Advanced Mode of 2Calculate and use coordinates. <p>Can they... Understand what makes a good password for use on the Internet. Beginning to realize the outcomes of not keeping passwords safe. Contribute to a concept map of all the different ways they know that the Internet can help us to communicate. Understand that some information held on websites may not be accurate or true Create their own 'spoof' webpage mock-up. Create a table of data on a spreadsheet. Use a spreadsheet program to automatically create charts and graphs from data. Use the 'more than', 'less than' and 'equals' tools to compare different numbers and help to work out solutions to sums. Describe a cell location in a spreadsheet using the notation of a letter for the column followed by a number for the row Find specified locations in a spreadsheet.</p>	<p>Typing</p> <ol style="list-style-type: none"> To discuss the need for correct posture when typing. To introduce typing terminology. To practice and improve typing skills To start to type words. To improve the speed and efficiency of typing skills <p>Can they... Understand the names of the fingers. Understand what is meant by 'top row', 'home row', 'bottom row' and 'space bar'. Use two hands to type the letters on the keyboard. Type full words using the correct fingering Type a series of words with speed and accuracy.</p>	<p>Coding</p> <ol style="list-style-type: none"> To design and write a program that accomplishes a specific goal. To design and write a program that simulates a physical system. To use repetition commands. To introduce 'if' statements. To introduce variables. <p>Can they... Explain what Object, Action, Output, Control and Event are in computer programming. Explain which commands they included in their program and what they achieve. Explain how their program simulates a physical system, i.e. my vehicles move at different speeds and angles. Begin to understand how the use of the timer differs from the repeat command and can experiment with the different methods of repeating blocks of code Explain how they made objects repeat actions Use a timer and 'if' statement to respond to the actions of a character and change their actions. Explain what steps to follow to debug a program. Explain what a variable is in programming. Create a variable in a program.</p>	<p>email</p> <ol style="list-style-type: none"> To think about the different methods of communication. To open and respond to an email. To write an email to someone, using an address book. To learn how to use email safely. To learn how to use email safely. To add an attachment to an email. To explore a simulated email scenario <p>Can they... list a range of different ways to communicate Open an email and respond to it. have sent emails to other children in the class. Write rules about how to stay safe using email. Create a quiz about email safety which explores scenarios that they could come across in the future. Attach work to an email. Read and respond to a series of email communications. Attach files appropriately and use email communication to explore ideas.</p>	<p>Branching databases</p> <ol style="list-style-type: none"> To sort objects using just YES/NO questions. To complete a branching database using 2Question To create a branching database of the children's choice. <p>Can they... Understand how YES/NO questions are structured and answered. Use YES/NO questioning to play a simple game with a friend. Contribute to a class branching database about fruit. Complete a branching database about vegetables. Select and save appropriate images. Create a branching database. Understand how to use and debug their own branching database</p>	<p>Simulations and graphing</p> <ol style="list-style-type: none"> To look at what simulations are. To explore a simulation. To analyse and evaluate a simulation. To enter data into a graph and answer questions. To solve an investigation and present the results in graphic form. <p>Can they... Set up a graph with a given number of fields. Understand that a computer simulation can represent real and imaginary situations. Give some examples of simulations used for fun and for work. Give suggestions of advantages and problems of simulations Use a simulation to try out different options and to test predictions. Evaluate simulations by comparing them with real situations and considering their usefulness. Recognize patterns within simulations and make and test predictions Evaluate a simulation to determine its usefulness for purpose. Enter data for a graph. Produce and share graphs made on the computer</p>

		Set/change the variable values appropriately to create a timer.			Present the results in a range of graphical formats
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Year 4	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	<p>Online safety and spreadsheets</p> <ol style="list-style-type: none"> To share knowledge of online safety To create and share online safety presentation and information material Use a spreadsheet to plan a budget Explore Place value <p>Can they... Use the number formatting tools to appropriately format numbers?</p> <p>Add a formula to a cell to automatically make a calculation in that cell? Use the timer, random number and spin button tools?</p> <p>Use a series of data in a spreadsheet to create a line graph.</p> <p>Use a line graph to find out when the temperature in the playground will reach 20°C?</p> <p>Make practical use of a spreadsheet to help them plan actions?</p> <p>Allocate values to images and use these to explore place value.</p> <p>Use a spreadsheet made in 2Calculate to check their understanding of a mathematical concept.</p> <p>Challenge: Can they develop their spreadsheet in Excel?</p>	<p>Animation</p> <ol style="list-style-type: none"> To learn how animations are created by hand To learn about onion skinning in animation To add backgrounds and sounds to animations To be introduced to stop motion animation <p>Can they... Put together a simple animation using paper to create a flick book?</p> <p>Have an understanding of animation frames?</p> <p>Make a simple animation using 2Animate?</p> <p>Use onion skinning in animation?</p> <p>Add backgrounds and sounds to animations?</p> <p>Discuss 'stop motion' animation?</p> <p>Share animation on the class display board and by blogging?</p> <p>Challenge To create</p>	<p>Coding</p> <ol style="list-style-type: none"> Design and write a program that accomplishes a specific goal. To use variables and if/else statements Using repetition and user input Debug a simple code <p>Can they... Explain what Object, Action, Output, Control and Event?</p> <p>Explain which commands they included in their program and what they achieve?</p> <p>Create an 'if/else' statement?</p> <p>Understand what a variable is?</p> <p>Use repetition and user input?</p> <p>Make a character respond to user keyboard input.</p> <p>Explain what steps are needed to follow to debug a program</p> <p>Challenge: Can they use scratch</p>	<p>Creating Algorithms</p> <ol style="list-style-type: none"> To input simple instructions To use the repeat function to create shapes To use and build procedures <p>Can they... Explain common instructions are in Logo and how to type them?</p> <p>Follow simple Logo instructions to create shapes on paper?</p> <p>Follow instructions to create shapes in Logo?</p> <p>Understand the pu and pd commands?</p> <p>Use the Repeat function in Logo to create shapes?</p> <p>Follow Logo code to predict the outcome?</p> <p>Use the Procedure feature?</p> <p>Challenge:</p>	<p>Writing for different audiences</p> <ol style="list-style-type: none"> To explore how font size and style can impact a text To use a simulated scenario to create a news report To use a scenario to create a community campaign <p>Can they ... Discuss a variety of written material where the font size and type are tailored to the purpose of the text?</p> <p>Use text formatting to make a piece of writing fit for its audience and purpose?</p> <p>Use a simulated scenario to produce a news report interpreted a variety of incoming communications and used these to build up the details of a story.</p> <p>Assess their texts using criteria to judge their suitability for the intended audience? Challenge:</p>	<p>Effective searching and hardware investigation</p> <ol style="list-style-type: none"> To locate information on the search results page To use search effectively To assess whether an information source is true or reliable To recall and identify the different parts that make up a computer <p>Can they... Structure search queries to locate specific information?</p> <p>Use search effectively to find out information?</p> <p>Assess whether an information source is true and reliable?</p> <p>Name the different parts of a desktop computer?</p> <p>Children know what the function of the different parts of a computer are</p> <p>Challenge</p>

Year 5	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	<p>Online safety and Spreadsheets</p> <ol style="list-style-type: none"> To discuss and understand the importance of keeping personal information safe to create formulae to use spreadsheets to perform calculations <p>Can they...</p> <p>Explain what Childnet SMART CREW is and have used their resources to gain an understanding of keeping safe online?</p> <p>Explain who to tell if they are upset by something that happens online?</p> <p>Make a comic strip to share knowledge about online safety?</p> <p>Children can create a formula in a spreadsheet to convert m to cm?</p> <p>Children can create simple formulae that use different variables?</p> <p>Challenge: Can they use Excel?</p>	<p>Databases</p> <ol style="list-style-type: none"> To learn how to search for information in a database To contribute to a class database To create a database around a chosen topic <p>Can they ...</p> <p>Understand the different ways to search a database?</p> <p>Search a database in order to answer questions correctly?</p> <p>Design an avatar for a class database?</p> <p>Create a database around a chosen topic?</p> <p>Add records to their database?</p> <p>Explain what a database field is and can correctly add field information?</p> <p>Word questions so that they can be effectively answered using a search of their database?</p>	<p>Coding</p> <ol style="list-style-type: none"> Design and write a program that accomplishes a specific goal Introduce text variables Create and improve a game <p>Can they ...</p> <p>Explain what Object, Action, Output, Control and Event are in computer programming?</p> <p>Explain which commands they included in their program and what they achieve?</p> <p>Simulate a physical system Introduce text variables?</p> <p>Explain what a variable is in programming?</p> <p>Use coding knowledge to create a program that explains internet safety?</p>	<p>Game Creator</p> <ol style="list-style-type: none"> To create a game environment To create a game quest To evaluate their and peer games <p>Can they...</p> <p>Review and analyse a computer game? Describe some of the elements that make a successful game?</p> <p>Design a setting for a game so that it fits with the selected theme?</p> <p>Upload images or Design characters for their game?</p> <p>Decide upon, and change, the animations and sounds that the characters Make make their game more unique by selecting the appropriate options?</p> <p>Challenge</p>	<p>3D Modelling</p> <ol style="list-style-type: none"> To be introduced to modelling programs To explore the effects of moving points To understand printing and making To understand designing for a purpose <p>Can they ...</p> <p>Explain what the 2Design and Make tool is for?</p> <p>Show effect of moving points when designing?</p> <p>Adapt one of the vehicle models by moving the points to alter the shape of the vehicle while still maintaining its form?</p> <p>Design for a purpose?</p> <p>Edit a polygon 3D models to design a 3D model for a purpose</p> <p>Challenge</p>	<p>Concept Maps</p> <ol style="list-style-type: none"> To discuss the need for visual representation when generating new ideas To create a concept map To understand how concepts maps can be used to retell stories and information To create a collaborative concept map <p>Can they...</p> <p>Make connections between thoughts and ideas?</p> <p>Explain the importance of recording concept maps visually Understand what is meant by 'concept maps', 'stage', 'nodes' and 'connections'?</p> <p>Use Presentation Mode to present their concept maps to an audience?</p> <p>Challenge</p>

Year 6	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	<p>Online Safety and spreadsheets</p> <ol style="list-style-type: none"> To review aspects of online safety and make an online themed game To learn about the safety aspects of blogging To explore probability To create formulae to use in real contexts <p>Can they ... Explain the areas of online safety that they have studied throughout school?</p> <p>Talk about the safety aspects of blogging?</p> <p>Create a spreadsheet to answer a mathematical question relating to probability?</p> <p>Take copy and paste shortcuts Use the formula wizard to create formulae?</p> <p>Use a spreadsheet to solve a problem?</p>	<p>Blogging</p> <ol style="list-style-type: none"> Identify the purpose of writing a blog To consider the effects of writing a blog To understand the important of regularly updating a blog To understand why blog posts are approved by the teacher <p>Can they ... Understand how a blog can be used as an informative text?</p> <p>Understand the key features of a blog Work collaboratively to plan a blog?</p> <p>Consider the effect upon the audience of changing the visual properties of the blog?</p> <p>Understand that blogs need to be updated regularly to maintain the audience's interest and engagement?</p>	<p>Coding</p> <ol style="list-style-type: none"> Design and write a more complex program that accomplishes a specific goal To introduce functions To use buttons to showcase work. To review coding vocabulary <p>Can they ... Plan a program before coding to anticipate the variables that will be required to achieve the desired effect?</p> <p>Debug when things do not run as expected Explain what functions are and how they can be created?</p> <p>Explain how they organized code in a program into functions to make it easier to read Include buttons to launch windows to external websites?</p>	<p>Text Adventures</p> <ol style="list-style-type: none"> To find out what a text adventure is To make a story based adventure To introduce map based text adventures To code a map based text adventure <p>Can they Describe what a text adventure is?</p> <p>Use a program to record their ideas Split an adventure-game design into appropriate sections to facilitate coding?</p> <p>Code, test and debug the sections, using 2Code? Use the 'launch' command in 2Code to bring all the sections of their game together into a playable adventure game?</p> <p>Contrast a map-based game with a sequential story-based game?</p>	<p>Networks</p> <ol style="list-style-type: none"> To discover what children know about the internet To find out what a WAN and LAN are To find out the internet is accessed at schools To research and find out about the age and future of the internet <p>Can they... Tell the difference between the World Wide Web and the internet?</p> <p>Explain what a LAN and a WAN are? Explain out how we access the internet in school?</p> <p>Research and find out about the age of the internet?</p> <p>Speculate about what the future might hold?</p> <p>Find out about Tim Berners-Lee?</p> <p>Consider some of the major changes in technology which have taken place?</p>	<p>Quizzing</p> <ol style="list-style-type: none"> To make a picture quiz for young children To learn how to create sentence types To make a quiz that requires the player to search a database <p>Can they... Use the 2DIY activities to create a picture-based quiz?</p> <p>Share a quiz and respond to feedback?</p> <p>Understand the different question types within 2Quiz. Consider the audience's ability level and interests when setting the quiz?</p> <p>Choose an appropriate Text Toolkit tool to make their own grammar game?</p> <p>Make a quiz that requires the player to search a database?</p>