Maulden Lower School
Computing Curriculum Map

1.Key Knowledge, Skills, & Vocabulary by Strand

Multimedia and Handling Data (ICT) Information Technology					
	EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**
Key Knowledge	• Move objects on a screen. • Create shapes and text on a screen. • Use technology to show my learning	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content. • Children are able to sort, collate, edit and store simple digital content e.g. children can name, save and retrieve their work and follow simple instructions to access online resources, use Purple Mash 2Quiz example (sorting shapes), 2Code design mode (manipulating backgrounds) or using pictogram software such as 2Count.	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content. • Demonstrate an ability to organise data using a database such as 2Investigate and can retrieve specific data for conducting simple searches. • Edit more complex digital data such as music compositions within 2Sequence. • Children are confident when creating, naming, saving and retrieving content. • Children use a range of media in their digital content including photos, text and sound.	• 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. • Carry out simple searches to retrieve digital content, understanding 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. • 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. • Consider what software is most appropriate for a given task. They can create purposeful content to attach to emails, e.g. 2Respond.	• 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. • Understand the function, features and layout of a search engines and can select webpages for credibility and information at a basic level. • Children are able to make improvements to digital solutions based on feedback. • Children make informed software choices when presenting information and data using a range of software such as 2Connect and 2Publish+. • Children share digital content within their community, i.e. using Virtual Display Boards.

Key Software Progression		2Quiz – 2Code design mode – 2Count.	2Investigate – 2Sequence	2Question – 2Graph – 2Respond	2Connect – 2Publish+ – Virtual Display board

Multimedia and Handling Data (Information Technology)				
	EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**

	EYFS	Year 1	Year 2	Year 3	Year 4
Vocabulary	App Camera Keyboard Open Photo(graph) Print Save Shift Sound Space bar Video / Film	Picture Text Sort Program Sound Audience Edit Sorting Venn Diagram Pictogram Organise Store Manipulate Sort Collate Digital	Organise Store Manipulate Data Sound Text Photos Media Creating Naming Saving Database Complex Content	Digital Analyse Present Software Collect Evaluate Branching Database Retrieve System Search Engine Design	Digital Evaluating Select Combine Program System Presenting Software Function Analysing Collecting Data Publish

(Computer Science)					
	EYFS	Year 1	Year 2	Year 3	Year 4
Key Knowledge	See programming	See programming	See programming	• To list and use a range of ways that the Internet can be used to provide different methods of communication e.g. being able to open, respond to and attach files to emails using 2Email. • To describe appropriate email conventions when communicating in this way. • Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration.	• Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration. . To recognise the main component parts of hardware which allow computers to join and form a network. To understand the online safety implications associated with the ways the Internet can be used to provide different methods of communication is improving.
Vocabulary	Internet QR Code Technology / Computing devices	Communicate QR Code Search Technology / Computing devices World Wide Web / Internet	Communicate QR Code Search engine Technology / Computing devices Login Screenshot Website World Wide Web / Internet	Airdrop Browser Communicate Computing devices Copyright email Filter Internet Login QR Code Reliability Search engine Search result Screenshot Share Webpage Website World Wide Web	Airdrop Browser Blog Citation Communicate Computing devices Copyright email Filter Internet Login QR Code Reliability Screenshot Search engine Search result Search query Share Vlog Webpage Website World Wide Web

Programming (Computer Science)				
EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**

Key Knowledge

EYFS	Year 1	Year 2	Year 3	Year 4
• Make a floor robot move. • Use simple software to make something happen. • Make choices about which buttons and icons to press, touch or click.	• Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. • To understand that an algorithm is a set of instructions used to solve a problem or achieve an objective. • To know that a computer program turns an algorithm into code that the computer can understand. • Create and debug simple programs. • Use logical reasoning to predict the behaviour of simple programs. • To work out what is wrong with a simple algorithm when the steps are out of order, e.g. The Wrong Sandwich in Purple Mash and can write their own simple algorithm, e.g. Colouring in a Bird activity. • To know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code, e.g. Bubbles activity in 2Code. • To read code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program. . To predict where challenges will end up at the end of the program.	• Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. •To explain that an algorithm is a set of instructions to complete a task. •When designing simple programs, show an awareness of the need to be precise with their algorithms so that they can be successfully converted into code. • Create and debug simple programs. • Use logical reasoning to predict the behaviour of simple programs. • To can create a simple program that achieves a specific purpose. • To identify and correct some errors, e.g. Debug Challenges: Chimp. • To identify the parts of a program that respond to specific events and initiate specific actions. For example, they can write a cause and effect sentence of what will happen in a program.	• 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. • To turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. • To identify an error within their program that prevents it following the desired algorithm and then fix it. • To demonstrate the ability to design and code a program that follows a simple sequence. They experiment with timers to achieve repetition effects in their program and understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects. • Designs for programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, repetition and use of timers. • To make good attempts to 'step through' more complex code in order to identify errors in algorithms and can correct this. e.g. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately.	• 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. • When turning a real-life situation into an algorithm, design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. • Children's use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. •To understand 'IF statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs. • To make use of user inputs and outputs such as 'print to screen'. e.g. 2Code. • Designs for programs show thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'IF' statements, repetition and variables.

	EYFS	Year 1	Year 2	Year 3	Year 4
Programming (Computer Science)					

Key Knowledge					• Trace code and use step-through methods to identify errors in code and make logical attempts to correct this. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately.
Key Software Progression	Bee-Bots	2Code - 2Go	Chimp	2Email – Timers	2Code
Vocabulary	Button Floor robot Forward Backward Reverse Left Right Go Mistake Turn Move Stop	*Algorithm* Program Instructions Debug Logical Reasoning Code Steps Order Write Interpret	Algorithm Program Sentence Logical Steps Design Debug Errors Purpose Instructions Predict Reasoning	Algorithm Predict Programs Logo Design Write Debug Accomplish Controlling Stimulating Composing Sequence Repetition Variables Input Output Detect Correct Sequence Experiment	Algorithm Trace code Design Write Debug Programs Controlling Simulating Sequence Selection Repetition Variables Input Output. Errors Coding Timers Logical, Trace code Predict

Online Safety (Digital Literacy)				
EYFS	Year 1	Year 2	Year 3	Year 4
• Use rules given to me by a trusted adult when I use technology. • Be kind to my friends •Use a safe part of the Internet to play and learn. • Make sure a trusted adult is with me. • Use a log in to access devices. • See information that is put online about me. • Use devices with other people, talking about what we do • Be careful with technology devices. • List the things that are the same about my friend and me. • Use apps, games and websites that trusted adults show me. • Use a device for a limited time.	• 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. • To understand what is meant by technology and can identify a variety of examples both in and out of school. • To make a distinction between objects that use modern technology and those that do not e.g. a microwave vs. a chair. • To understand the importance of keeping information, such as their usernames and passwords, private and actively demonstrate this in lessons. . • To take ownership of their work and save this in their own private space such as their My Work folder on Purple Mash.	. Recognise common uses of information technology beyond school. • To effectively retrieve relevant, purposeful digital content using a search engine. •To apply their learning of effective searching beyond the classroom and share knowledge, e.g. 2Publish example template. • To make links between technology they see around them, coding and multimedia work they do in school e.g. animations, interactive code and programs. • 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. • To know the implications of inappropriate online searches. • To begin to understand how things are shared electronically such as posting work to the Purple Mash display board. • 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.	• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concern about content and contact. • To demonstrate the importance of having a secure password and not sharing this with anyone else. • To explain the negative implications of failure to keep passwords safe and secure. • To understand the importance of staying safe and the importance of their conduct when using familiar communication tools such as 2Email in Purple Mash. • To know more than one way to report unacceptable content and contact.	• Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact. • To explore key concepts relating to online safety using concept mapping such as 2Connect. • To help others to understand the importance of online safety. • To know a range of ways of reporting inappropriate content and contact.

Online Safety (Digital Literacy) Key Knowledge

	Key Skills (ICT)				
	EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**
Key Knowledge	• To know how to use a mouse • To know how to use a laptop touchpad • To be able to find the individual letters on the keyboard and navigate using the keyboard. • To be able to select colours and choose tools to experiment with. • To be able to describe, plan and program a toy robot to complete a route. • To experiment with music to create sounds. • To be able to take, access and identify features of photographs using a device. • To explore and know technology around us. • To understand how to look after equipment. • To understand how to use equipment safely. • To understand the importance of respect and kindness in content. • To understand and participate in a quiz • To use a login	• How to hold/carry/ look after devices (introduced with each device used) • Switch laptop on and off correctly • Use home button on a tablet. • Open appropriate App or Home screen link on a tablet • Open a document or other file on a laptop/PC. • Take a photo and open camera roll on a tablet. • Follow a hyperlinked image to a website using a laptop or PC • Follow links to find information • Use passcode on a tablet and/or log in on laptop/PC • Develop coordination and motor skills in operation a mouse or trackpad on a laptop or PC. • Use the top right hand 'x ' icons to close a window • Use keyboard to find the letters of your name or basic spellings. (Encourage use of left and right hands.) • Use caps lock key for a capital letter. • Use space bar between words.	• How to hold/carry/ look after devices (introduced with each device used) • Open Apps and software on a PC/Laptop (double click) • Use class or personal log in for online resources (Purple Mash) • Save and Open files and images • Insert images within apps and software • Use simple children's search engine. • Use the top right-hand icons to minimise/maximise/close a window. • Use keyboard to enter text (index fingers left and right hand) • Know when and how to use the RETURN/ENTER key. • Use SHIFT and CAPS LOCK to enter capital letters • Use DELETE and BACKSPACE buttons to correct text	• How to hold/carry/ look after devices (introduced with each device used) • Use a personal log in for online resources • Connect peripheral devices using USB lead/bluetooth/wifi • Share iPad screen on IWB • Take a screenshot • Save work on Purple Mash • Share files in Purple Mash • Close all open apps on a tablet • Begin to understand a file system • Navigate to public drive to save and retrieve files • Use and choose filenames • Use Save and Save As on laptops and PCs • Use the top right-hand icons to minimise/maximise/close a window • Use individual fingers to input text and use SHIFT key to type characters. • Amend text by highlighting and using SELECT/DELETE and COPY/PASTE on a laptop/pc and tablet • Swap between letters and symbol input on a tablet • Change the font size and style (including bold, underline, italic) in documents and presentations	• How to hold/carry/ look after devices (introduced with each device used) • Create and use their own password to access Purple Mash • Rename documents and other files • Save and share files within Purple Mash • Browse to a specified website • Use an appropriate screen capture and insert in document or presentation • Use the spellchecker and understand how it works • Use the mouse/trackpad right-click short cut menu • Use a keyboard effectively, including the use of numbers and punctuation • Use of ctrl, + alt + del

Key Skills (ICT)				
EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**
app home screen icon keyboard open (left) click keyboard log in/out open password program save shut down space bar trackpad	app (left) click close cursor enter home button icon keyboard log in/out open password program save shut down space bar trackpad user username window	backspace (left) click close cursor delete enter home button icon insert keyboard log in/out menu open password program shared file save shift shut down shortcut space bar trackpad user username window	backspace bold copy delete edit enter filename folder font (style and size) home button icon insert italic keyboard log in/out menu open paste password program screenshot shared file shortcut save (save as) shift shut down space bar trackpad underline user username window	backspace bold (right) click copy delete edit enter filename folder font (style and size) icon insert italic keyboard log in/out menu open paste password program screenshot shared file save (save as) shift shut down space bar spellchecker tab trackpad underline user username window

Vocabulary

2. Yearly Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Spring 2
Foundation Stage	Mouse and track pad skills Keyboard skills Technology around us Hardware		Drawing skills Quizzes Robots Safety and privacy		Sounds Photography Using Purple Mash with individual login	
Year 1	Unit 1.1 Online Safety & Exploring Purple Mash (Lesson 1, 2, 3 and 4) Unit 1.7 Coding - Programs – 2Code (6 lessons) Unit 1.4 Lego Builders Programs – 2DIY (3 lessons)		Unit 1.2 Grouping & Sorting Programs – 2DIY (2 lessons) Unit 1.3 Pictograms (Programs – 2Count) (3 lessons) Unit 1.8 Spreadsheets Programs – 2Calculate (3 lessons)		Unit 1.5 Maze Explorers Programs – 2Go (3 lessons) Unit 1.9) Technology outside school (2 lessons) Unit 1.6 Animated Story Books Programs – 2Create A Story (5 lessons)	
Year 2	Unit 2.2 Online Safety (Lesson 1, 2 and 3) Unit 2.1 Coding Programs – 2Code (6 lessons) Unit 2.5 Effective Searching Programs – Browser (3 lessons)		Unit 2.3 Spreadsheets Programs – 2Calculate (4 lessons) Unit 2.4 Questioning Programs - 2Question, 2Investigate (5 lessons)		Unit 2.6 Creating Pictures Programs – 2PaintAPicture (5 lessons) Unit 2.7 Making Music Programs – 2Sequence (3 lessons) Unit 2.8 Presenting Ideas (4 lessons)	

Year 3	**Unit 3.2** Online safety (Lesson 1, 2 and 3) **Unit 3.1** Coding Programs – 2Code (6 lessons) **Unit 3.7** Simulations Programs – 2Simulate, 2Publish (3 lessons)	**Unit 3.3** Spreadsheets Programs – 2Calculate (3 lessons) **Unit 3.6** Branching Databases Programs – 2Question (4 lessons) **Unit 3.8** Graphing Programs – 2Graph (2 lessons)	**Unit 3.4** Touch Typing Programs – 2Type (4 lessons) **Unit 3.5** Email (including email safety) Programs – 2Email, 2Connect, 2DIY (6 lessons) **Unit 3.9** Presenting (with Microsoft PowerPoint or Google Slides) Main Program – MS PowerPoint or Google Slides (5 – 6 lessons)
Year 4	**Unit 4.2** Online safety (Lessons 1, 2, 3 and 4.) **Unit 4.8** Hardware Investigators (2 lessons) **Unit 4.1** Coding Main Programs – 2Code (6 lessons)	**Unit 4.3** Spreadsheets Programs –2Calculate (5 lessons) **Unit 4.5** Logo Programs – Logo (4 lessons) **Unit 4.6** Animation Programs – 2Animate (3 lessons)	**Unit 4.4** Writing for different Audiences Programs – 2Email, 2Connect, 2DIY (5 Lessons) **Unit 4.7** Effective Search Programs – Browser (3 lessons) **Unit 4.9** Making Music Main Program – Busy Beats (4 lessons)

The 3 areas of the curriculum are taught through the following strands:

Computer Science   Programming & Technology in Our Lives

Digital Literacy   Online safety

ICT   Multimedia & Handling Data