Curriculum Knowledge, Skills & Progression

Computing & ICT

Victoria Mottershead- June 2023

Yellow – doesn't fit end points – optional unit

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Unit 1.1 Online Safety/ Explore Purple Mash Ad hoc paint	Unit 1.2 Grouping and Sorting	Unit 1.4 Lego Builders	Unit 1.5 Maze Explorers	Unit 1.8 Spreadsheets Unit 1.9 Technology outside of school	Unit 1.7 Coding
Year 2	Unit 2.2 Online Safety Unit 2.5 Effective Searching	Unit 2.1 Coding	Unit 2.4 Questioning	Unit 2.3 Spreadsheets	Unit 2.6 Creating Pictures	Unit 2.7 Making Music Unit 2.8 Presenting Ideas
Year 3	Unit 3.4 Touch Typing	Unit 3.1 Coding	Unit 3.2 Online Safety	Unit 3.6 Branching Databases Unit 3.5 Email	Unit 3.9 Presenting with PowerPoint	Unit 3.3 Spreadsheets Unit 3.8 Graphing
Year 4	Unit 4.2 Online Safety Unit 4.7 Effective Research	Unit 4.8 Hardware Investigators Unit 4.4 Writing for Different Audiences	Unit 4.1 Coding	Unit 4.5 Using 2Logo Unit 4.6 Animation	Unit 4.3 Spreadsheets	Unit 4.9 Making Music
Year 5	Unit 5.8 Word Processing (MS Word)	Unit 5.4 Databases Unit 5.7 Concept Maps	Unit 5.1 Coding	Unit 5.2 Online safety Unit 5.6 3D modelling	Unit 5.3 Game Creator	Unit 5.3 Spreadsheets
Year 6	Unit 6.6 Networks	Unit 6.9 Spreadsheets (MS Excel)	Unit 6.2 Online safety	Unit 6.4 Blogging	Unit 6.5 Text adventures	Unit 6.1 Coding

Year 1

To code			To collect		To communicate	To connect	
Write and test simple programs. ● To know that an algorithm is a set of instructions and that the order is important ● To know how to identify a problem within a simple algorithm and how to fix it			**Sort and group data** ● To know examples for a variety of criteria, e.g. eye colour, house type ● To know the difference between sorting and grouping ● To know how to sort or group items using a range of criteria	**Navigate a simple spreadsheet and add data** ● To understand what rows and columns are ● To know how to enter data into cells ● To add images to a spreadsheet ● To know how to do simple calculations in a spreadsheet	**Know how to use technology purposefully to create and store digital content** ● To know how to paint with different colours and brushes. ● To know how to create shapes and fill areas ● To know how to add text to a page / image ● To use simple edit tools (undo and redo)	**Recognise the common uses of information technology beyond school.** ● To identify and know how technology is used in school and beyond.	**Understand how to communicate safely online.** ● To know what personal information is and how to keep it safe. ● To know how to be respectful (online and offline). ● To recognise and report inappropriate behaviour (online and offline).
Unit 1.4 Lego Builders	**Unit 1.5 Maze explorers**	**Unit 1.7 Coding**	**Unit 1.2 Sorting & grouping**	**Unit 1.8 Spreadsheets**	**Ad hoc Paint**	**Unit 1.9 Tech outside school**	**Unit 1.1 Online Safety / explore PM**
Possible sequence of activities:							

Lesson 1 - Following Instructions Lesson 2 - Following and Creating Simple Instructions on the Computer Lesson 3 - To consider how the order of instructions affects the result	Lesson 1 - Challenges 1 & 2 Lesson 2 - Challenges 3 & 4 Lesson 3 - Challenges 5 & 6 Lesson 4 - Setting More Challenges	Lesson 1 - Instructions Lesson 2 - Objects & Actions Lesson 3 - Events Lesson 4 - When code executes Lesson 5 - Setting the scene Lesson 6 - Using a plan	Lesson 1 - Sorting away from the computer Lesson 2 - Sorting on the computer	Lesson 1 - Introduction to Spreadsheets Lesson 2 - Adding Images to a Spreadsheet and Using the Image Toolbox Lesson 3 - Using the 'Speak' and 'Count' Tools in 2Calculate to Count Items	No relevant Purple Mash unit. End points to be reached through ad-hoc activities using **2Paint** or **Paint.**	Lesson 1 - What is Technology? Lesson 2 - Technology outside school.	Lesson 1 - Safe Logins Lesson 2 -My work area Lesson 3 - Purple Mash topics Lesson 2 - Purple Mash Tools

Year 2

To code	To collect		To communicate		To connect	
Plan write and test simple programs • To use logical reasoning to predict the behaviour of simple programs. • To know how to plan a sequence of instructions to achieve a purpose	**Organise data and use to conduct simple searches** • To know how to design a binary tree to sort pictures • To know how to use a database to answer more complex search questions • To know how to use the 'search' tool to find information in a database • To know spreadsheets can be used to create tables and graph • To know how to copy, cut and paste in a spreadsheet • To know how to use tools in a spreadsheet to automatically total rows and columns • To know how to create a table of data on spreadsheet • To know how to use data to create a block graph • To save, open and edit spreadsheets		**Know how to use technology purposefully to create, organise, store, manipulate and retrieve digital content** • To understand that you can make music / art and present it in different ways • To know how to retrieve a file to edit in a computer program. • To understand the importance of feedback in order to make improvements		**Understand what a Digital Footprint is and its implications.** • To know that the information put or searched for online leaves a digital footprint. • To know how to keep personal data safe online • To know how to complete safe searches and select appropriate information. • To identify a variety of different devices that connect to the internet	
Unit 2.1 Coding	**Unit 2.3 Spreadsheets**	**Unit 2.4 Questioning**	**Unit 2.6 Creating pictures**	**Unit 2.7 Making music**	**Unit 2.2 Online Safety**	**Unit 2.5 Effective Searching**
Additional optional unit: 2.8 Presenting ideas.						
Possible sequence of activities:						

Lesson 1 - Algorithms Lesson 2 - Collision detection Lesson 3 - Using a timer Lesson 4 - Different object types Lesson 5 - Buttons Lesson 6 - 'Smelly code' debugging	Lesson 1 - Reviewing prior use of spreadsheets Lesson 2 - Copying and pasting totalling tools Lesson 3 - Using a spreadsheet to add amounts Lesson 4 - Creating a table and block graph	Lesson 1 - Using and Creating Pictograms Lesson 2 - Asking Yes / No Questions Lesson 3 - Binary Trees Lesson 4 - Using 2Question - a Computer Based Binary Tree Program Lesson 5 - Using 2Investigate: a Non Binary Database	Lesson 1 - Introduction and Impressionism Lesson 2 - Pointillist Art Lesson 3 - Piet Mondrian Lesson 4 - William Morris and Pattern Lesson 5 - Surrealism and eCollage	Lesson 1 - Introducing 2Sequence Lesson 2 - Making Music Lesson 3 - Soundtracks	Lesson 1 - Searching & sharing Lesson 2 - Email using 2Respond Lesson 3 - Digital Footprint	Lesson 1 - Understanding the Internet and Searching Lesson 2 - Searching the Internet Lesson 3 - Sharing Knowledge of the Internet and Effective Searching

Year 3

To code	To collect			To communicate	To connect
Design and write programs that accomplish specific goals. • To know how to debug multiple problems within their own algorithm • To know how to use a sequence and repetition in programs. • To begin to know how to integrate multimedia components	**Create a range of charts and graphs from data in a spreadsheet** • To know how to add and edit in a table layout. • To know how spreadsheet programs can automatically create graphs from data. • To know that different charts and graphs can represent the same data. • To know how to navigate and name cells	**Use and debug branching databases** • To know how to sort objects using just yes and no questions. • To know how to ask appropriate and relevant questions to sort information • To know how to edit and adapt an existing branching database to accommodate new entries.	**Present results in a range of formats and use 'sorting' to analyse results** • To know how to enter results into a graph. • To know how to discuss and compare results. • To know how to share a graph with others. • To know how to use the sorting option to make analysis easier.	**Know how to create content that accomplishes a given goal using a variety of software on a range of devices** • To know how to order and group objects. • To know how to recognise an effective layout. • To know how to combine text and images. • To know how to lay out objects effectively • To know how to input on a keyboard (touch typing, shortcuts) • To know how to create a presentation	**Recognise how technology can provide multiple services and be used for collaboration.** • To know how to search the internet and think critically about the results that are returned. • To understand how search results are selected and ranked. • To understand how websites target your digital footprint to promote advertisements. • To learn about the meaning of age-restriction symbols and to understand why PEGI restrictions exist • To know how to send and respond to emails safely • To identify a variety of different devices that allow communication with others *(email, facetime, voice memo, phone call)*

	in specific locations.	• To know how to create, use and debug their own branching database. • To know how to select and save images.					
Unit 3.1 Coding	**Unit 3.3 Spreadsheets**	**Unit 3.6 Branching databases**	**Unit 3.8 Graphing**	**Unit 3.4 Touch typing**	**Unit 3.9 Presenting with Powerpoint**	**Unit 3.2 Online Safety**	**Unit 3.5 Email**
Possible sequence of activities:							
Lesson 1 -Using Flowcharts Lesson 2 - Using timers Lesson 3 - Using repeat Lesson 4 -	Lesson 1 - Creating pie charts and bar graphs Lesson 2 - More than, less than, spin buttons Lesson 3 - Advanced mode and cell	Lesson 1 - Introducing databases Lesson 2 - Branching databases Lesson 3 - Creating a branching database on	Lesson 1 - Introducing 2Graph Lesson 2 - Using 2Graph to solve an investigation	Lesson 1 - Home, top and bottom row keys Lesson 2 - Home, top and bottom row keys Lesson 3 - Left keys	Lesson 1 - Making a presentation from a blank slide Lesson 2 - Adding media Lesson 3 - Adding shapes & lines	Lesson 1 - Safety in numbers! Lesson 2 - Fact or fiction? Lesson 3 - Appropriate content and ratings	Lesson 1 - Communication Lesson 2 - Composing Lesson 3 - Using Email safely 1 Lesson 4 - Using

Code, test & debug Lesson 5 - Design & make an interactive scene Lesson 6 - Design & make an interactive scene	addresses	the computer Lesson 4 - Creating a branching database on the computer		Lesson 4 - Right keys	Lesson 4 - Adding animation Lesson 5 - Create a presentation Lesson 6 - Create a presentation		Email safely 2 Lesson 5 - Attachments Lesson 6 - Email simulations

Year 4

To code	To collect	To communicate		To connect	
Design and write programs that include controlling or simulating physical systems. ● To know how to debug multiple problems within their own algorithms/programs using a range of software ● To begin to know how to integrate multi media components ● To know how variables affect an outcome	**Use formulae and combine tools in spreadsheets** ● To know how to use place value in a spreadsheet, including currency and decimals ● To know how to add formulae to a cell to calculate results. ● To know how to use a variety of tools within a spreadsheet. ● To know how to use a series of data to create line graphs. ● To know how to interpret a line graph. ● To know how to use a spreadsheet in a real-life situation, e.g. budgeting	**To know how to design and create a range of programs and content.** ● Animate objects ● Build sequences of images into animations ● Tell a story through animation ● To know how to create simple musical rhythms ● To develop more complex pieces of music involving rhythm and melody		**To know how to create content that accomplishes a given goal and presenting information to a specific audience.** ● To know how to create and debug an algorithm to create a procedure. ● To know how to create and debug an algorithm that uses setpos to draw shapes. To know how to create and debug an algorithm with different colours. ● To know how to create and debug an algorithm to produce text.	**Recognise how to be responsible digital citizens** ● To create safe online profiles and explain why ● To know how to stay safe from online threats (phishing, malware) ● To understand the term plagiarism. ● To identify what is a reasonable, responsible balance between active and digital behaviour ● To develop and further their understanding of acceptable / unacceptable online behaviour and know way a range of ways to report	**Recognise the component parts of hardware which allow computers to join and form a network** ● To know and name component parts of a computer (desk top – mouse, touch pad, screen, microphone)
Unit 4.1 Coding	**Unit 4.3 Spreadsheets**	**Unit 4.6 Animation**	**Unit 4.9 Making music**	**Unit 4.5 Using 2Logo**	**Unit 4.2 Online Safety**	**Unit 4.8 Hardware investigators**

Additional optional units: 4.4 Effective Research, 4.7 Writing for Different Audiences						
Possible sequence of activities:						
Lesson 1 - Design, code, test & debug Lesson 2 - IF statements Lesson 3 - Coordinates Lesson 4 - Repeat Until and IF/ELSE statements Lesson 5 - Number variables	Lesson 1 - Formula wizard and formatting cells Lesson 2 - CUsing the timer and spin buttons Lesson 3 - Line graphs Lesson 4 - Using a spreadsheet for budgeting Lesson 4 - Exploring place value with a spreadsheet	Lesson 1 - Animating an object Lesson 2 - 2Animate too Lesson 3 - Sto Motion anima	Lesson 1 - Understanding music Lesson 2 - Rhyth and tempo Lesson 3 - Meloc and pitch Lesson 4 - Creati music	Lesson 1 - Introduction to 2Logo Lesson 2 - Creating letters using 2Logo Lesson 3 - Using the 'repeat' command in 2Logo Lesson 4 - Using procedures	Lesson 1 -Going Phishing! Lesson 2 - Beware Malware Lesson 3 - Plagiarism Lesson 4 - Healthy Screen time Lesson 5 - Digital Footprint	Lesson 1 - Hardware Lesson 2 - Parts of a computer

Year 5

To code	To collect		To communicate		To connect
Design and write programs that accomplish specific goals by decomposing them into smaller parts. ● To know how to simplify sequences, selection and repetition in programs ● To know how to work with variables and with various forms of inputs and outputs ● To know how to generate appropriate inputs and predicted outputs to test a program ● To understand how to create efficient algorithms	**Create spreadsheets to solve calculations and problems** ● To know that data can be organised in different ways. ● To know how to enter formulae to carry out calculations. ● To know that data can be presented in a range of ways. ● To know how to format tables/graphs. ● To know how to enter information and search their own database ● To know how to create a database and add records ● To know what a field is and be able to add information ● To understand that there are different ways to search a database.		**To know how to select, use and combine a variety of software (including Internet services) on a range of digital devices.** ● To use concept maps to plan a series of ideas ● To work collaboratively to present a range of ideas ● To design a game concept including a purpose and rules for play ● To evaluate a game and identify improvements	**To design content by drawing and manipulating 3D shapes.** ● To know how to use 3D modelling software ● To know how to draw 3D shapes. ● To know how to add detail to 3D drawings. ● To know how to add and manipulate 3D models. ● To know how to create a complex 3D model.	**Recognise how to be responsible digital citizens and the impact it has on others** ● To know how images and digital technology can be presented as false reality online ● To know how to apply online safety rules to real life scenarios ● To know how to keep personal data safe online – eg strong passwords ● To know the importance of thinking critically about online use
Unit 5.1 Coding	**Unit 5.3 Spreadsheets**	**Unit 5.4 Databases**	**Unit 5.3 Game Creator**	**Unit 5.7 Concept mapping**	**Unit 5.6 3D Modelling**	**Unit 5.2 Online Safety**

Extra unit: 5.8 Word Processing						
Possible sequence of activities:						
Lesson 1 - Coding efficiently Lesson 2 - Simulating a physical system Lesson 3 - Decomposition & abstraction Lesson 4 - Friction & functions Lesson 5 - Introducing Strings	Lesson 1 - Conversion of measurements Lesson 2 - The count tool Lesson 3 - Formulae including the advanced mode Lesson 4 - Using text variables to perform calculations Lesson 5 - Event planning with a spreadsheet	Lesson 1 - Searching a database Lesson 2 - Creating a database Lesson 3 - Creating a topic database	Lesson 1 -Setting the scene Lesson 2 - Creating the game environment Lesson 3 - The game quest Lesson 4 - Finishing and sharing Lesson 5 - Evaluation	Lesson 1 Introduc concept Lesson 2 2Connec Lesson 3 2Connec mode Lesson 4 Collabor concept	Lesson 1 - Introducing 2Design andMake Lesson 2 - Moving points Lesson 3 - Designing for a purpose Lesson 4 - Printing and making	Lesson 1 - Responsibilities and support when online Lesson 2 - Protecting privacy Lesson 3 - Citing sources Lesson 4 - Reliability

Year 6

To code		To collect	To communicate	To connect	
Design, write and explain more complex programs that fulfil specific purposes and apply with independence ● To know how to simplify sequences, selection and repetition in programs and conditional coding (functions) ● To know and apply knowledge of working with variables and with various forms of inputs and outputs ● To know and apply knowledge how to generate appropriate inputs and predicted outputs to test a program ● To know apply use efficient algorithms		**Utilise shortcuts and formulae when creating Excel spreadsheets** ● To know how spreadsheets are used in real life. ● To understand which formulae to use. ● To understand how to copy and paste formulae. ● To know how to interpret data and make conclusions. ● To know how to debug errors within a spreadsheet.	**To know how to select, use and combine a variety of software (including Internet services) on a range of digital devices.** ● To plan and create a blog ● To respond to a blog	**Demonstrate being responsible digital citizens** ● To know and identify the benefits and pitfalls of online relationships, location sharing services, social media ● To know and identify cyber bullying and strategies to be able to deal with this ● To understand (as a Year 6 child) how and why age restrictions apply	**Recognise the component parts of a network** ● Know the difference between the world wide web and the internet ● To know and name network hardware and types – *eg servers and routers, internets and intranets, virtual private networks*
Unit 6.1 Coding	**Unit 6.5 Text adventures**	**Unit 6.9 Spreadsheets with Excel**	**Unit 6.4 Blogging**	**Unit 6.2 Online safety**	**Unit 6.6 Networks**

Possible sequence of activities:					
Lesson 1 - Designing and making a more complex program Lesson 2 - Designing and making a more complex program Lesson 3 - Using functions Lesson 4 - Flowcharts and control simulations Lesson 5 - User input Lesson 6 - Text-based adventures	Lesson 1 -What is a text adventure? Lesson 2 - Making a story-based adventure game Lesson 3 - Introducing map-based text adventures Lesson 4 - Coding a map-based text adventure	Lesson 1 - What is a spreadsheet Lesson 2 - Basic calculations Lesson 3 - Modelling Lesson 4 - Organising data Lesson 5 - Advanced formulae and big data	Lesson 1 -What is a blog? Lesson 2 - Planning a blog Lesson 3 - Writing a blog Lesson 4 - Sharing posts and commenting	Lesson 1 - Message in a game Lesson 2 - Online behaviour Lesson 3 - Screen time	Lesson 1 - The World Wide Web and the Internet Lesson 2 - Our school network and accessing the Internet Lesson 3 - Research