Ivy Bank Computing Scheme of Work

EYFS Theme	Autumn 1	Autumn 1	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	**Me and My Family**	**Let's Explore Outside**	**Wonderful Water**	**Life Cycles**	**Amazing Animals**	**Journeys/Transport**

Term	Autumn		Spring		Summer	
Year 1	**Online Safety 1.1 (2)** Digital Literacy **Spreadsheets 1.8 (3)** Information Technology **Grouping and sorting 1.2 (2)** Computer Science		**Coding 1.7 (6)** Computer Science		**Animated Story Books 1.6 (4)** Information Technology **Technology outside of school 1.9 (2)** Digital Literacy	
Year 2	**Online Safety 2.2 (3)** Digital Literacy **Spreadsheets 2.3 (4)** Information Technology		**Coding 2.1 (6)** Computer Science		**Creating Pictures 2.6 (5)** Information Technology	
Year 3	**Online Safety 3.2 (3)** Digital Literacy **Spreadsheets 3.3 (3)** Information Technology		**Coding 3.1 (5)** Computer Science		**Presenting with Google Slides 3.9 (5)** Information Technology	
Year 4	**Online Safety 4.2 (5)** Digital Literacy **Animation 4.6 (3)** Information Technology		**Coding micro: bits 4.11 (5)** Computer Science		**Spreadsheets 4.3 (5)** Information Technology	
Year 5	**Online Safety 5.2 (4)** Digital Literacy **Game Creator 5.3 (4)** Computer Science		**Coding 5.1 (5)** Computer Science		**Unit 5.4 Databases (3)** Information Technology	
Year 6	**Online Safety 6.2 (3)** Digital Literacy **Blogging 6.4 (4)** Digital Literacy		**Coding 6.1 (6)** Computer Science		**Spreadsheets with Google sheets 6.9 (5)** Information Technology	

EYFS - Purple Mash Composites to Endpoints			
To Code	To Collect	To Communicate	To Connect
Confidently try new activities and show independence, resilience and perseverance in the face of challenge To know how to follow the rules of a game To know how to plan a route for a toy or vehicle To know how to input instructions including directions (eg for a floor robot /person)	**To know how to collect information and present it in a pictogram** To know how to collect information, using technology to support me To name different kinds of information To know how to add information to a pictogram	**Explore, use and refine a variety of artistic effects to express their ideas and feelings.** To know how to create shapes and patterns on screen using a mouse, trackpad or touchscreen.	**Recognise a range of technology in my environment.** To know some types of technology used at home (Alexa/ Siri, smart TV, phones and tablets, gaming) To understand the reasons for rules, know right from wrong and try to behave accordingly.

Me and My Family	Let's Explore Outside	Wonderful Water	Life Cycles	Amazing Animals	Journeys/Transport
Possible activities to support planning within the Nursery and Reception environments					
(Mini Mash) About Me	(Mini Mash) Seasons	(Mini Mash) Under the Sea	(Mini Mash) Growing Baby Animals	(Mini Mash) Farm Minibeasts Pets	(Mini Mash) Vehicles and vehicles from the past

Year 1 - Purple Mash Composites to Endpoints				EYFS/Y1/Y2/Y3/Y4/Y5/Y6	
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 simply edit a picture. ● To know how to add text to an page / image ● To add animation to a text ● 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 1.7 Coding (6)	Unit 1.2 Grouping and Sorting (2)	Unit 1.8 Spreadsheets (3)	Unit 1.6 Animated Story Books (4)	Unit 1.9 Tech outside school (2)	Unit 1.1 Online Safety / explore PM (2)
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**	**Lesson 1 - Drawing and Creating** **Lesson 2 - Animation** **Lesson 3 - Sounds and More!** **Lesson 4 - Making a Story** Lesson 5 - Copy and Paste	**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 4 -Purple Mash Tools**

Year 2 - Purple Mash Composites to Endpoints			
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 (6)	Unit 2.3 Spreadsheets (4)	Unit 2.6 Creating pictures (5)	Unit 2.2 Online Safety (3)
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 -Introduction and Impressionism** **Lesson 2 - Pointillist Art** **Lesson 3 - Piet Mondrian** **Lesson 4 - William Morris and Pattern** **Lesson 5 - Surrealism and eCollage**	**Lesson 1 - Searching & sharing** **Lesson 2 - Email using 2Respond** **Lesson 3 - Digital Footprint**

Year 3 - Purple Mash Composites to Endpoints			
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 in specific locations.	**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
Unit 3.1 Coding (5)	Unit 3.3 Spreadsheets (3)	Unit 3.9 Presenting with Google Slides (5)	Unit 3.2 Online Safety (3)
Lesson 1 -Using Flowcharts **Lesson 2 - Using timers** **Lesson 3 - Using repeat** **Lesson 4 – Code, test and debug** **Lesson 5 – Design and make an interactive scene** Lesson 6 - Design and make an interactive scene	**Lesson 1 - Creating pie charts and bar graphs** **Lesson 2 - More than, less than, spin buttons** **Lesson 3 - Advanced mode and cell addresses**	**Lesson 1 - Making a presentation from a blank slide** **Lesson 2 - Adding media** **Lesson 3 - Adding shapes & lines** **Lesson 4 – Adding animation** **Lesson 5 – Create a presentation** Lesson 6 – Create a presentation	**Lesson 1 - Safety in numbers!** **Lesson 2 - Fact or fiction?** **Lesson 3 - Appropriate content and ratings**

Year 4 - Purple Mash Composites to Endpoints			
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	**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 , microphone)
Unit 4.11 Coding micro: bit (5)	Unit 4.3 Spreadsheets (4)	Unit 4.6 Animation (3)	Unit 4.2 Online Safety (5)	
Lesson 1 – Emotion Badge **Lesson 2 – Step Counter** **Lesson 3 – Night Light** **Lesson 4 – Rock, Paper, Scissors** **Lesson 5 – Making a Dice**	**Lesson 1 - Formula wizard and formatting cells** **Lesson 2 - Using the timer and spin buttons** **Lesson 3 - Line graphs** **Lesson 4 - Using a spreadsheet for budgeting** **Lesson 5 - Exploring place value with a spreadsheet**	**Lesson 1 - Animating an object** **Lesson 2 - 2Animate tools** **Lesson 3 - Stop-Motion animation**	**Lesson 1 -Going Phishing!** **Lesson 2 - Beware Malware** **Lesson 3 - Plagiarism** **Lesson 4 - Healthy Screen time** **Lesson 5 - Digital Footprint**

Year 5 - Purple Mash Composites to Endpoints			
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 Databases to solve 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	**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 (5)	Unit 5.4 Databases (3)	Unit 5.3 Game Creator (5)	Unit 5.2 Online Safety (4)
Lesson 1 - Coding efficiently **Lesson 2 - Simulating a physical system** **Lesson 3 - Decomposition & abstraction** **Lesson 4 - Friction & functions** **Lesson 5 - Introducing Strings**	**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 -Responsibilities and support when online** **Lesson 2 - Protecting privacy** **Lesson 3 - Citing sources** **Lesson 4 - Reliability**

Year 6 - Purple Mash Composites to Endpoints			
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 ● To understand different styles of questioning ● To choose an appropriate tool for a quiz ● To develop and test a quiz	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
Unit 6.1 Coding (6)	Unit 6.9 Spreadsheets with Google Sheets (5)	Unit 6.4 Blogging (4)	Unit 6.2 Online safety (3)
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 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