Ivy Bank Computing Scheme of Work

EYFS Theme	Autumn 1	Autumn 1	Spring 1	Spring 2	Summer 1	Summer 2
	Me and My Family	**Let's Explore Outside**	**Wonderful Water**	**Life Cycles**	**Amazing Animals**	**Journeys/Transport**
Term	Autumn 1	Autumn 1	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	**Online Safety** Digital Literacy **Grouping and sorting** Information Technology	**Pictograms** Information Technology **Lego Builders** Computer Science	**Maze Explorers** Computer Science **Animated Story Books** Information Technology	**Coding** Computer Science	**Spreadsheets** Information Technology	**Technology outside of school** Digital Literacy
Year 2	**Online Safety** Digital Literacy **Coding** Computer Science	**Spreadsheets** Information Technology	**Questioning** Information Technology **Effective Searching** Computer Science	**Creating Pictures** Information Technology	**Making Music** Information Technology	**Presenting Ideas** Information Technology
Year 3	**Online Safety** Digital Literacy **Coding** Computer Science	**Spreadsheets** and **Touch Typing** Information Technology	**Email** Information Technology	**Branching Databases** Information Technology	**Simulations** Information Technology	**Graphing** Information Technology
Year 4	**Online Safety** Digital Literacy **Coding** Computer Science	**Spreadsheets** Information Technology	**Writing for Different Audiences (Word Processing and Presentation)** Information Technology	**Logo** Computer Science **Animation** Information Technology	**Effective internet Search** Computer Science	**Hardware Investigators** Information Technology
Year 5	**Online Safety** Digital Literacy **Coding** Computer Science	**Spreadsheets** Information Technology	**Databases** Information Technology	**Game Creator** Information Technology	**3D modelling** Information Technology	**Concept Maps** Information Technology
Year 6	**Online Safety** Digital Literacy **Coding** Computer Science	**Spreadsheets** Information Technology	**Blogging** Information Technology	**Text Adventures** Information Technology	**Networks** Computer Science **Quizzing** Information Technology	**Binary** Information Technology

	Computing Curriculum Strands – Composites *and* **Endpoints**			
	To Code	To Collect	To Communicate	To Connect
EYFS	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 sort and categorise objects. To know and explain how items have been sorted and categorised. To understand how to represent data in a pictogram To understand how to read a simple pictogram	To know how to create shapes and patterns on screen using a mouse, trackpad or touchscreen.	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
EYFS ELG	**Confidently try new activities and show independence, resilience and perseverance in the face of challenge**	**Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity**	**Explore, use and refine a variety of artistic effects to express their ideas and feelings.**	Recognise a range of technology in my environment.
Year 1	**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 what criteria is To know examples for a variety of criteria, e.g. eye colour, house type To know how to sort and group items using a range of criteria To know what a spreadsheet looks like To understand what rows and columns are To know how to enter data into cells To know how to find and add clipart images to a spreadsheet To know how to use the 'move cell' and 'lock' tools 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 an 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).
Year 2	**Plan write and test simple programs** To use logical reasoning to predict the behaviour of simple programs.	**Organise data and use to conduct simple searches** To know how to design a binary tree to sort pictures	Know how to use technology purposefully to create, organise, store, manipulate and retrieve digital content	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 plan a sequence of instructions to achieve a purpose	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	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	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
Year 3	**Year 3** **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. **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. To know how to create, use and debug their own branching database.	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)*

		To know how to select and save images. **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.		
Year 4	**Year 4** **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 multimedia components. To know how variables affect an outcome	**Year 4** **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 so that it automatically calculates 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 select, use and combine a variety of software (Including internet services) on a range of devices. To know how to design and create a range of programs and content. 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 know and create safe online profiles and explain why To know how to protect themselves from online threats (phishing, malware) To understand the term plagiarism and how to avoid it 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)

Year 5	**Year 5** **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 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
Year 6	**Year 6** **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 design specific content to match a brief using 3D modelling software.** 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. To know how to create an interior of a 3D Model.	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*