Folly View Primary School Computing Learning Progression

Computing Curriculum Knowledge Area	Pre-School	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computing Systems and Networks Understanding how and why Information Technology is Used and Connected	• Observed family using smart phones, tablets and computers to communicate with others. • Explored technology and asked what it does.	• Explain how I have used technology to talk and communicate with others (video messaging, phone calls etc). • Role play using technology to communicate with others. • Use technology such as walkie talkies (look like mobile phones) to communicate with peers.	• Explain technology as being something that helps us. • Recognise and locate examples of technology in the classroom and at home. • Name the main parts of a computer. • Switch on and log into a computer. • Use a mouse to click, drag, create pictures, open programs. • Save work to a file. • Open work from a file. • Identify rules to keep us safe and healthy when we are using technology in school and at home.	• Identify example of computers used beyond school and home • Identify and understand what Information Technology is compared to other technology. • Understand how IT devices work together. • Explain why we use IT and list different uses of information technology. • Use IT for different types of activities. • Continue to identify and follow rules to keep us safe and healthy when we are using technology in school and at home.	• Understand that digital devices accept inputs • Understand that digital devices produce outputs. • Classify input and output devices. • Describe a simple process. • Design a digital device. • Explain how I use digital devices for different activities. • Recognise similarities between using digital devices and non-digital tools. • Suggest differences between using digital devices and non-digital tools, • Understand why we need a network switch. • Explain how messages are passed through multiple connections. • Recognise different connections. • Demonstrate how information can be passed between devices. • Explain the role of a switch, server, and wireless access point in a network. • Recognise that a computer network is made up of a number of devices. • Identify how devices in a network are connected together. • Identify networked devices around me. • Identify the benefits of computer networks.	• Understand how information is shared across the internet. • Understand the internet as a network of networks. • Understand why a network needs protecting. • Explain how networked devices connect together. • Understand that the internet is used to provide many services. • Recognise that the World Wide Web contains websites and web pages. • Explain how to access websites on the WWW. • Explain where websites are stored when uploaded to the WWW. • Explain the types of media that can be shared on the WWW. • Understand that internet services can be used to create content online. • Understand that there are rules to protect content. • Understand that websites and their content are created by people. • Suggest who owns the content on websites. • Understand that not everything on the World Wide Web is true. • Explain why I need to think carefully before I share or reshare content. • Explain why some information I find online may not be honest, accurate, or legal.	• Understand that a computer system features inputs, processes, and outputs. • Understand that computer systems communicate with other devices. • Compare results from different search engines. • Make use of a web search to find specific information. • Refine my web search. • Recognise the role of web crawlers in creating an index. • Relate a search term to the search engine's index. • Understand that a search engine follows rules to rank results. • Give examples of criteria used by search engines to rank results. • Order a list by rank. • Describe some of the ways that search results can be influenced. • Understand how search engines make money. • Recognise some of the limitations of search engines.	• Understand how computers use addresses to access websites. • Understand that internet devices have addresses. • Understand that all data transferred over the internet or networks is in packets. • Identify and understand the main parts of a data packet. • Understand how to access shared files stored online. • Send information over the internet in different ways. • Understand how the internet enables effective collaboration and identify different ways of working together online • Recognise that working together on the internet can be public or private. • Choose methods of communication to suit particular purposes. • Identify that there are a variety of ways to communicate over the internet. • Compare different methods of communicating on the internet. • Decide when I should and should not share information online. • Understand that communication on the internet may not be private.

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Computer Programming	• Follow simple one-step instructions. • Explore remote control toys.	• Follow simple one-step and two-step instructions. • Give my friends instructions for how to build a construction model/ play a game. • Continue to explore remote control toys and what happens when different buttons are pressed.	• Predict the outcome of a command on a robot. • Run a command on a robot. • Predict the outcome of a sequence involving forwards and backwards commands. • Experiment with turn and move commands to move a robot. • Predict the outcome of a sequence involving up to four commands. • Debug my robot program. • Explain what my robot's program should do. • Plan simple robot programs. • Compare different programming tools. • Identify and use commands to move a sprite on Scratch Jr. • Run my program on Scratch Jr. • Use a Start block in a program on ScratchJr. • Join blocks together on ScratchJr. • Use blocks that have numbers and change their value on ScratchJr.. • Add blocks to each of my sprites on ScratchJr.. • Use more than one sprite in my project on ScratchJr.. • -Delete a sprite on my project on ScratchJr.. • Plan and create algorithms for each sprite. • Add programming blocks based on my algorithm. • Test the programs I have created.	• Give clear instructions. • Understand the difference in outcomes between two sequences that consist of the same commands. • Use an algorithm to program a sequence on a floor robot. • Use the same instructions to create different algorithms. • Compare my prediction to the program outcome. • Follow a sequence. • Predict the outcome of a sequence. • Identify different routes around a Blue-Bot robot mat. • Create an algorithm to meet my robot's goal. • Explain what my robot's algorithm should achieve. • Plan algorithms for different parts of a task for a robot. • Test and debug each part of the program for a robot. • Identify the start of a sequence in ScratchJr. • Show how to run my program in ScratchJr. • Change the outcome of a sequence of commands in ScratchJr. • Predict the outcome of a sequence of commands in ScratchJr. • Build the sequences of blocks I need in ScratchJr. • Work out the actions of a sprite in an algorithm. • Debug my ScratchJr program. • Improve my ScratchJr project by adding features.	• Explain the relationship between an event and an action. • Program movement using Scratch. • Choose blocks to set up my Scratch program. • Use a programming extension in Scratch. • Build more sequences of commands to make my design work using Scratch. • Choose suitable keys to turn on additional features. • Match a piece of code to an outcome. • Modify a program using a design. • Test a program against a given design and debug the program.	• Modify a snippet of code to create a given outcome. • Predict the outcome of a snippet of code. • Choose when to use a count-controlled and an infinite loop. • Modify loops to produce a given outcome. • Recognise that some programming languages enable more than one process to be run at once. • Choose which action will be repeated for each object. • Evaluate the effectiveness of the repeated sequences used in my program. • Explain what the outcome of the repeated action should be. • Identify which parts of a loop can be changed. • Re-use existing code snippets on new sprites in Scratch. • Refine the algorithm in my design.	• Create a simple circuit and connect it to a microcontroller. • Explain what an infinite loop does. • Program a microcontroller to make an LED switch on. • Connect more than one output component to a microcontroller. • Design sequences that use count-controlled loops. • Use a count-controlled loop to control outputs. • Design a conditional loop. • Explain that a condition is either true or false. • Program a microcontroller to respond to an input. • Understand that a condition being met can start an action. • Use selection (an 'if…then…' statement) to direct the flow of a program. • Test and debug my project. • Use selection to produce an intended outcome.	• Apply my knowledge of programming to a new environment. • Test my program on an emulator. • Transfer my program to a controllable device. • Determine the flow of a program using selection. • Use a variable in an if, then, else statement to select the flow of a program. • Experiment with different physical inputs. • Understand that checking a variable doesn't change its value. • Use a condition to change a variable. • Understand the importance of the order of conditions in else, if statements. • Modify a program to achieve a different outcome. • Use an operand (e.g. <>=) in an if, then statement. • Decide what variables to include in a project. • Design the algorithm for my project. • Design the program flow for my project. • Create a program based on my design. • Test my program against my design. • Use a range of approaches to find and fix bugs.

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Word Processing and Digital Publishing (Print and Electronic Formats) Please note, the use of word processing skills and the creation of digital texts is used in many subjects, enabling children to continue to practise and develop these skills in a cross-curricular context for example in Years 4 and 5.	• Show curiosity and explore what happens when buttons and keys on keyboards and screens are pressed.	• Investigate what a keyboard does and how it is used. • Begin to explore the keys and buttons on a keyboard and identify some of the keys for letters from their name.	• Understand what a keyboard does and identify some letters on the keyboard. • Use the keyboard to type their name and save their work.	• Identify and find keys on a keyboard including letters, numbers and the space bar. • Enter text into a computer. • Begin to use backspace to remove text. • Begin to use features on the toolbar such as bold, italic, underline, change font, size and colour. • Hold down the Shift Key at the same time as the key for the letter I want to capitalise.	• Explain the difference between text and images. • Change font style, size, and colours for a given purpose. • Edit text. • Create a template for a particular purpose. • Define the term 'page orientation.' • Recognise placeholders and say why they are important. • Make changes to content after I've added it. • Paste text and images • Choose a suitable layout for a given purpose. • Identify the uses of desktop publishing in the real world.	• Continue to develop, apply and use word processing and digital publishing skills in other subjects. For example, producing leaflets, posters, presentations, and other formats.	• Continue to develop, apply and use word processing and digital publishing skills in other subjects. For example, producing leaflets, posters, presentations, and other formats.	• Discuss the different types of media used on websites • Know that websites are written in HTML. • Draw a web page layout that suits my purpose. • Recognise the common features of a web page. • Suggest media to include on my page. • Find copyright-free images. • Explain why I should use copyright-free images. • Add content to my own web page. • Evaluate what my web page looks like on different devices and suggest/make edits. • Preview what my web page looks like. • Describe why navigation paths are useful. • Explain what a navigation path is. • Make multiple web pages and link them using hyperlinks. • Evaluate the user experience of a website. • Explain the implication of linking to content owned by others.
Multimedia – Art, Photography, Videos and Music	• Show curiosity and explore what happens when you draw on the interactive whiteboard, or take a photo.	• Make marks on a screen and explain which tools I used. • Show curiosity and explore what happens when you take a photo using a digital camera/ iPad. • Show curiosity and explore what happens when you use a paint program such as 2Paint Projects on Purple Mash.	• Use the paint tools to draw a picture. • Use the shape and line tools to create digital artwork. • Choose appropriate paint tools and colours to create digital artwork. • Say which tools were helpful and explain why. • Understand that different paint tools do different jobs. • Change the colour and brush sizes.	• Continue to develop, apply and use multimedia skills learnt so far in other subjects.	• Explain how an animation works. • Create an effective stop-frame animation. • Explain why little changes are needed for each frame. • Predict what an animation will look like. • Review a sequence of frames to check my work. • Use onion skinning to help me make small changes between frames. • Add other media to my animation	• Use photo editing software to crop an image. • Experiment with different colour effects, • Explain why I chose certain colour effects. • Add to the composition of an image by cloning. • Remove parts of an image using cloning. • Experiment with tools to select and copy part of an image • Create a project that is a combination of other images • Combine text and my image to complete the project.	• Discuss how vector drawings are different from paper-based drawings. • Recognise vector drawings are made using shapes. • Understand each element added to a vector drawing is an object. • Move, resize, and rotate objects I have duplicated. • Use alignment grids and resize handles to improve consistency in vector drawings. • Modify objects to create a new image. • Use the zoom tool to help me add detail to my drawings. • Understand that each added object creates a new layer in the drawing • Use layering to create an image. • Change the order of layers in a vector drawing. • Duplicate several objects. • Group and ungroup objects. • Reuse a group of objects in vector drawings. • Create vector drawings for a specific purpose.	• Add 3D shapes to a project. • Move 3D shapes in relation to one another. • View 3D shapes from different perspectives. • Lift/lower 3D objects. • Recolour 3D objects. • Resize an object in three dimensions. • Duplicate 3D objects. • Group 3D objects • Rotate objects in three dimensions. • Accurately size 3D objects. • Combine a number of 3D objects. • Use placeholders to create holes in 3D objects. • Construct a 3D model based on a design

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Data Collection, Organisation and Presentation In Years 1, 2, 3 and 6 these data collection, organisation and presentation knowledge and skills are taught in a cross-curricular context, such as Maths and Science rather than in Computing lessons alone.	• Begin to show an interest in sorting objects such as counters by colours/ types of counters, or who items belong to. • Begin to put objects in order. • Begin to Talk about how objects are similar.	• Sort objects such as counters by colours/ types of counters. • Put objects in order. • Talk about how objects are similar and different.	• Count objects. • Group objects. • Describe a property of an object. • Find objects with similar properties. • "Count how many objects share a property. • Group objects in more than one way. • Group similar objects. • Compare groups of objects. • Decide how to group objects to answer a question.	• Enter data onto a computer. • Use a computer to view data in a different format. • Create a pictogram on the computer. • Create simple block graphs on the computer. • Use a computer program to present information in different ways.	• Investigate questions with yes/no answers. • Make up a yes/no question about a collection of objects. • Arrange objects into a tree structure. • Create a group of objects within an existing group. • Select an attribute to separate objects into groups. • Group objects using my own yes/no questions. • Select objects to arrange in a branching database. • Test my branching database to see if it works. • Understand that questions need to be ordered carefully to split objects into similarly sized groups. • Create questions that will enable objects to be uniquely identified. • Independently create questions to use in a branching database.	• Explain what data can be collected using sensors on data loggers • Understand that data from sensors can be recorded • Recognise that a data logger collects data at given points/ intervals • Discuss the data that has been captured using data loggers. • Recognise there are different ways to view data • Plan how to collect data using a data logger • Use data loggers to collect data • Explain the benefits of using a data logger • Interpret data that has been collected using a data logger	• Create a simple database. • Understand how information can be recorded • Order, sort, and group my data. • Choose which field to sort data by to answer a given question. • Understand what a field and a record is in a database. • Navigate a flat-file database to compare different views of information. • Combine grouping and sorting to answer specific questions. • Understand that data can be grouped using chosen values. • Group information using a database. • Choose multiple criteria to answer a given question. • Choose which field and value are required to answer a given question . • Outline how 'AND' and 'OR' can be used to refine data selection. • Understand the benefits of using a computer to create charts. • Refine a chart by selecting a particular filter. • Select an appropriate chart to visually compare data.	• Enter data into a spreadsheet. • Suggest how to structure my data. • Apply an appropriate format to a cell. • Choose an appropriate format for a cell. • Explain what an item of data is. • Construct a formula in a spreadsheet. • Understand which data types can be used in calculations • Apply a formula to multiple cells by duplicating it. • Calculate data using different operations. • Create a formula which includes a range of cells. • Apply a formula to calculate the data I need to answer questions. • Understand why data should be organised. • Use a spreadsheet to answer questions. • Produce a chart. • Use a chart to show the answer to questions.