Cragside Church of England Primary School **Computing Curriculum Overview**

"A Love of Learning and a Thirst for Knowledge"

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	**How is technology used in the world around us?** ● Explore a variety of technologies including electronic toys and computers ● Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.	**How can we control devices?** Autumn ● Control a simple programme and understand devices can be controlled	Pets ● Complete a simple programme on the computer. ● Understand devices can be controlled.	Fairy Tales Explore a variety of technologies including electronic toys and computers Understand that lots of everyday things are controlled by computers.	Beebot Understand that devices can be controlled.	Beebot Programme a device predicting what it will do.
Year 1	**How can we be safe online? In what ways can we use Purple Mash?** ● To log in safely. ● To learn how to find saved work in the Online Work area and find teacher comments. ● To learn how to search Purple Mash to find resources. ● To become familiar with the icons and types of resources	**What is an instruction and why do we need to debug code?** ● To compare the effects of adhering strictly to instructions to completing tasks without complete instructions. ● To follow and create simple instructions on the computer. ● To consider how the order of instructions affects the result. (Unit 1.4 Lego Builders)	**Can we create an animated story?** ● To introduce e-books and the 2Create a Story tool. ● To add animation to a story. ● To add sound to a story, including voice recording and music the children have composed. ● To work on a more complex story, including adding backgrounds and	**What is coding?** To understand what coding means. To use design mode to set up a scene. To add characters. To use code blocks to make the character perform actions. To use collision detection. To save and share work. To know the save, print, open and new icon. (Unit 1.7 Coding)	**What are spreadsheets and what can we do with them?** ● To know what a spreadsheet program looks like. ● How to open 2Calculate in Purple Mash. ● How to enter data into spreadsheet cells. ● To use 2Calculate image tools to add clipart to cells.	**How is technology used outside of the school environment?** ● To walk around the local community and find examples of where technology is used. ● To record examples of technology outside school. (Unit 1.9 Technology Outside School)

	available in the Topics section. ● To start to add pictures and text to work. ● To explore the Tools and Games section of Purple Mash ● To learn how to open, save and print. ● To understand the importance of logging out (Unit 1.1 Online Safety and Exploring Purple Mash) **In what ways can we sort objects?** ● To sort items using a range of criteria. ● To sort items on the computer using the 'Grouping' activities in Purple Mash. (Unit 1.2 Grouping and Sorting) **How can we use Pictograms to represent data?** ● To understand that data can be represented in picture format. ● To contribute to a class pictogram.	**How can we use 2Go to move objects around the screen?** ● To understand the functionality of the direction keys. ● To understand how to create and debug a set of instructions (algorithm). ● To use the additional direction keys as part of an algorithm. ● To understand how to change and extend the algorithm list. ● To create a longer algorithm for an activity. To set challenges for peers. ● To access peer challenges set by the teacher as 2dos. (Unit 1.5 Maze Explorers)	copying and pasting pages. ● To share e-books on a class display board. (Unit: 1.6 – Animated Story Books)		● To use 2Calculate control tools: lock, move cell, speak and count. (Unit 1.8 Spreadsheets)	

	• To use a pictogram to record the results of an experiment. (Unit 1.3 Pictograms)					
Year 2	**How can we improve our coding skills?** • To understand what an algorithm is. • To design algorithms and then code them. • To compare different object types. • To use the repeat command. • To use the timer command. • To know what debugging is and debug programs. (Unit 2.1 Coding) **How can we communicate and share information online safely?** • To know how to refine searches using the Search tool. • To use digital technology to share work on Purple Mash to communicate and connect with others locally.	**How can we use spreadsheets to calculate and represent data?** To use 2Calculate image, lock, move cell, speak and count tools to make a counting machine. To learn how to copy and paste in 2Calculate. To use the totalling tools. To use a spreadsheet for money calculations. To use the 2Calculate equals tool to check calculations. To use 2Calculate to collect data and produce a graph. (Unit: 2.3 Spreadsheets) **How can we use a database to answer questions?** • To learn about data handling tools that can give more information than pictograms.	**How can we search the Internet?** • To understand the terminology associated with searching. • To gain a better understanding of searching on the Internet. • To create a leaflet to help someone search for information on the Internet. (Unit 2.5 Effective Searching)	**Can we recreate famous artwork using 2Paint a Picture?** • To learn the functions of the 2Paint a Picture tool. To learn about and recreate the Impressionist style of art (Monet, Degas, Renoir). To recreate Pointillist art and look at the work of pointillist artists such as Seurat. • To learn about the work of Piet Mondrian and recreate the style using the lines template. • To learn about the work of William Morris and recreate the style using the patterns template. (Unit 2.6 Creating Pictures)	**How can we make music digitally?** • To make music digitally using 2Sequence. • To explore, edit and combine sounds using 2Sequence. • To edit and refine composed music. • To think about how music can be used to express feelings and create tunes which depict feelings. • To upload a sound from a bank of sounds into the Sounds section. • To record and upload environmental sounds into Purple Mash. • To use these sounds to create tunes in 2Sequence. (Unit 2.7 Making Music)	**How many different ways can we present our ideas?** • To explore how a story can be presented in different ways. • To make a quiz about a story or class topic. • To make a fact file on a non-fiction topic. • To make a presentation to the class. (Unit 2.8 Presenting Ideas)

	• To have some knowledge and understanding about sharing more globally on the Internet. • To introduce Email as a communication tool using 2Respond simulations. To understand how we should talk to others in an online situation. • To open and send simple online communications in the form of email. • To understand that information put online leaves a digital footprint or trail. • To identify the steps that can be taken to keep personal data and hardware secure. (Unit: 2.2 – Online Safety)	• To use yes/no questions to separate information. To construct a binary tree to identify items. • To use 2Question (a binary tree database) to answer questions. • To use a database to answer more complex search questions. • To use the Search tool to find information. (Unit 2.4 Questioning)				
Year 3	**How do we design, write and decode our own algorithms?** • To design algorithms using flowcharts. • To design an algorithm that	**How can we stay safe online?** • To know what makes a safe password. • Methods for keeping passwords safe.	**Can we create our own spreadsheets to explore number and interpret data?** • To use the symbols more than, less than	**What are emails?** • To think about different methods of communication. • To open and respond to an email using an address book.	**Can we create our own Branching Databases?** • To sort objects using just 'yes' or 'no' questions.	**What can we do with graphs?** • To enter data into a graph and answer questions. • To solve an investigation and

	represents a physical system and code this representation. To use selection in coding with the 'if' command. ● To understand and use variables in 2Code. ● To deepen understanding of the different between timers and repeat commands. (Unit 3.1 Coding)	● To understand how the Internet can be used in effective communication. To understand how a blog can be used to communicate with a wider audience. ● To consider the truth of the content of websites. To learn about the meaning of age restrictions symbols on digital media and devices. (Unit 3.2 online Safety)	and equal to, to compare values. ● To use 2Calculate to collect data and produce a variety of graphs. ● To use the advanced mode of 2Calculate to learn about cell references. (Unit 3.3 Spreadsheets) **How can I improve my typing skills?** ● To introduce typing terminology. ● To understand the correct way to sit at the keyboard. ● To learn how to use the home, top and bottom row keys. ● To practice typing with the left and right hand. (Unit 3.4 Touch Typing)	● To learn how to use email safely. ● To add an attachment to an email. ● To explore a simulated email scenario. (Unit 3.5 Email)	● To complete a branching database using 2Question. ● To create a branching database of the children's choice. (Unit 3.6 Branching Databases) **What can we discover about computer simulations?** ● To consider what simulations are. ● To explore a simulation. ● To analyse and evaluate a simulation. (Unit 3.7 Simulations)	present the results in graphic form. (Unit 3.8 Graphing)
Year 4	**How can we incorporate variables into our coding?** ● To use selection in coding with the 'if/else' command. ● To understand and use variables in 2Code. ● To use flowcharts for design of algorithms including selection.	**How many different ways can we use spreadsheets?** ● Formatting cells as currency, percentage, decimal to different decimal places or fraction. ● Using the formula wizard to calculate averages.	**How can we use ICT in the wider world?** ● To explore how font size and style can affect the impact of a text. ● To use a simulated scenario to produce a news report. ● To use a simulated scenario to write for	**What is Logo?** ● To learn the structure of the coding language of Logo. ● To input simple instructions in Logo. ● Using 2Logo to create letter shapes. ● To use the Repeat function in Logo to create shapes.	**Can we create simple and more complex animations using 2Animate on Purple Mash?** ● To discuss what makes a good animated film or cartoon. ● To learn how animations are created by hand.	**How can we search effectively?** ● To locate information on the search results page. ● To use search effectively to find out information. ● To assess whether an information source is true and reliable.

	To use the 'repeat until' with variables to determine the repeat. ● To learn about and use computational thinking terms decomposition and abstraction. (Unit 4.1 Coding) **How can we protect ourselves online?** ● To understand how children can protect themselves from online identity theft. ● Understand that information put online leaves a digital footprint or trail and that this can aid identity theft. ● To Identify the risks and benefits of installing software including apps. ● To understand that copying the work of others and presenting it as their own is called 'plagiarism' and to consider the consequences of plagiarism. ● To identify appropriate	● Combining tools to make spreadsheet activities such as timed times tables tests. ● Using a spreadsheet to model a real-life situation. ● To add a formula to a cell to automatically make a calculation in that cell. (Unit 4.3 Spreadsheets)	a community campaign. (Unit 4.4 Writing for different audiences)	● To use and build procedures in Logo. (Unit 4.5 Logo)	● To find out how 2Animate can be created in a similar way using the computer. ● To learn about onion skinning in animation. ● To add backgrounds and sounds to animations. ● To be introduced to 'stop motion' animation. ● To share animation on the class display board and by blogging. (Unit 4.6 Animation)	(Unit 4.7 Effective Searching) **What is hardware?** ● To understand the different parts that make up a computer. ● To recall the different parts that make up a computer. (Unit 4.7 Hardware Investigators)

	behaviour when participating or contributing to collaborative online projects for learning. ● To identify the positive and negative influences of technology on health and the environment. ● To understand the importance of balancing game and screen time with other parts of their lives. (Unit 4.2 Online Safety)					
Year 5	**Can we program a playable game using 2Code?** ● To represent a program design and algorithm. ● Create a program that simulates a physical system using decomposition. ● To explore string and text variable types so that the most appropriate can be used in programs. ● To use the Launch command in 2Code Gorilla	**How can we use spreadsheets to model real-life situation and answer questions?** ● Using the formula wizard to add a formula to a cell to automatically make a calculation in that cell. ● To copy and paste within 2Calculate. ● Using 2Calculate tools to test a hypothesis. ● To add a formula to a cell to automatically make a calculation in that cell. Using a	**What can we learn about the functions of databases?** ● To learn how to search for information in a database. ● To contribute to a class database. ● To create a database around a chosen topic. (Unit 5.4 Databases)	**Can we create our own computer game?** ● To set the scene. ● To create the game environment. ● To create the game quest. ● To finish and share the game. ● To evaluate their and peers' games. (Unit 5.5 Game Creator)	**How can we design 3D objects in a 2D environment?** ● To be introduced to 2Design and Make and the skills of computer aided design. ● To explore the effect of moving points when designing. ● To understand designing for a purpose. ● To understand printing and making (Unit 5.6 3D Modelling)	**What are concept maps?** ● To understand the need for visual representation when generating and discussing complex ideas. ● To understand and use the correct vocabulary when creating a concept map. ● To create a concept map. ● To understand how a concept map can be used to retell stories

	● To program a playable game with timers and score pad. (Unit 5.1. Coding) **How can we be SMART online?** ● To gain a greater understanding of the impact that sharing digital content can have. To review sources of support when using technology and children's responsibility to one another in their online behaviour. ● To know how to maintain secure passwords. ● To understand the advantages, disadvantages, permissions and purposes of altering an image digitally and the reasons for this. ● To be aware of appropriate and inappropriate text, photographs and videos and the	spreadsheet to model a real-life situation and answer questions. (5.3 Spreadsheets)				and present information. ● To create a collaborative concept map and present this to an audience. (Unit 5.7 Concept Maps)

	impact of sharing these online. ● To learn about how to reference sources in their work ● To search the Internet with a consideration for the reliability of the results of sources to check validity and understand the impact of incorrect information. (5.2 Online Safety)					
Year 6	**How can we master our coding skills?** ● To use the program design process, including flowcharts, to develop algorithms for more complex programs using and understanding of abstraction and decomposition to define the important aspects of the program. ● To code, test and debug from these designs. ● To use functions and tabs in 2Code to improve the quality of the code. To code	**How can we put 2Calculate to practical use as a tool for computational modelling and problem solving in the 'real world'?** ● To use a spreadsheet to investigate the probability of the results of throwing many dice. ● Using the formula wizard to add a formula to a cell to automatically make a calculation in that cell.	**Can we create a blog for our school website and add to it?** ● To identify the purpose of writing a blog and its key features. ● To plan the theme and content for a blog and write the content. ● To consider the effect upon the audience of changing the visual properties of the blog. ● To understand the importance of regularly updating the content of a blog.	**Can we create an adventure story using 2Create a Story?** ● To find out what a text adventure is. ● To plan a story adventure. ● To make a story-based adventure. ● To introduce map-based text adventures. ● To code a map-based text adventure. (Unit 6.5 Text Adventures)	**What can we find out about the Internet?** ● To learn about what the Internet consists of. ● To find out what a LAN and a WAN are. ● To find out how the Internet is accessed in school. ● To research and find out about the age of the Internet. ● To think about what the future might hold. (Unit 6.6 Networks) **Who wants to be a quizmaster?**	**How are numbers used as the basis for representing all types of data in digital systems?** ● To know what the terms binary and denary mean and how they relate to the number system, the digital system and the terms base-10 and base-2 ● To relate binary to the on and off states of electrical switches. ● To convert numbers from decimal to binary.

	user interactivity using input functions. (Unit 6.1 Coding) **What does appropriate online behaviour look like?** ● Identify benefits and risks of mobile devices broadcasting the location of the user/device. ● Identify secure sites by looking for privacy seals of approval. Identify the benefits and risks of giving personal information. ● To review the meaning of a digital footprint. ● To have a clear idea of appropriate online behaviour. ● To begin to understand how information online can persist. ● To understand the importance of balancing game and screen time with other parts of their lives. ● To identify the positive and negative influences of	● To create graphs showing the data collected. ● To type in a formula for a cell to automatically make a calculation in that cell. ● Using a spreadsheet to create computational models and answer questions. (Unit 6.3 Spreadsheets)	● To understand how to contribute to an existing blog. ● To understand how and why blog posts are approved by the teacher (Unit 6.4 Blogging)		● To create a picture-based quiz for young children. ● To learn how to use the question types within 2Quiz. ● To explore the grammar quizzes. ● To make a quiz that requires the player to search a database. (Unit 6.7 Quizzing)	● To convert numbers from binary to decimal. ● To represent states of object in their own program using binary. (Unit 6.8 Binary)

	technology on health and the environment. (Unit 6.2 Online Safety)					