ICT Units by Year Group -Questions

	Autumn				Spring			Summer		
EYFS	Technology is embedded across all areas of learning in the early years. We focus on the children understanding the way technology is used in the world around them and the use of technology as a tool within learning. Technology helps children develop their understanding of the world their place within it. Technology is a significant part of our children's lives and as such we support the children in their understanding of how technology can be used safely and for the right purpose. Our children experience a wide range of technology and explore their uses, from cameras and ipads to digital visualisers and programmable robots. We encourage the children to use technology to learn and play in different ways, to support their communication with others and to add value to their learning and development.									
Year 1	What is Purple Mash? How do I stay safe online? PM 1.1	How can I sort objects using a computer? PM 1.2	What is a pictogram? PM 1.3	What is de-bugging? PM 1.4	What is an algorithm? PM 1.5	How do I make an animated book? PM 1.6	What is a computer code? PM 1.7	What is a computer code? PM 1.7	What is a spreadsheet? PM 1.8	What technology can I find outside school? PM 1.9
Year2	How do I create a programme to tell a story? PM 2.1	What is a digital footprint? PM 2.2	How do I create a table and block graph? PM 2.3		Can I use a database to answer a question? PM 2.4	What is an effective internet search? PM 2.5	How do I create electronic art? PM 2.6	What is an ecollage? PM 2.6	How do I use a computer to make music? PM 2.7	How can a story be presented in different ways? PM 2.8
Year 3	How do I write a computer programme? PM 3.1	Is cyber-bullying the same as bullying? Where can I get help? PM 3.2	What is cell location in a spreadsheet? PM 3.3		Can I type with both hands? PM 1.4	What is an email? How do I send an electronic letter? PM 3.5	What is a branching database? PM 3.6	What is a branching database? PM 3.6	What is a simulation? PM 3.7	How do I present my own results in a graph? PM 3.8

Computer Science, Information Technology, & Digital Literacy

ICT Units by Year Group -Questions

Year 4	How do I manipulate graphics? PM 4.1	How do I protect myself from online identity theft? What is plagiarism? PM 4.2	What is the formula wizard in a spreadsheet? PM 4.3	How do I use a spreadsheet for budgeting? PM 4.3	How does font style and size have an impact on writing? PM 4.4	What is Logo and how do I learn its language? PM 4.5	What is stop motion animation? PM 4.6	Is all information on the internet true and reliable? PM 4.7	What are the different parts of a computer? PM 4.8
Year 5/6 Plan A	How do I create a string to add a launch button to a game? PM 5.1/6.1	What is the impact of sharing digital content? How do I make a secure password? PM 5.2	How are spreadsheets used in the real world? PM 5.3	How are spreadsheets used in the real world? PM 5.3	How do I search information in a database? PM 5.4	What makes an effective game? PM 5.5	How do I create 2D and 3D models? PM 5.6	What is a concept map and what is it used for? PM 5.6	
Year 5/6 Plan B	How do I write programmes that include variables? PM 6.1/5.1	What are the benefits and risks of mobile devices broadcasting location? PM 6.2	Can spreadsheets plan my pocket money spending? PM 6.3	Can spreadsheets plan my pocket money spending? PM 6.3	What is blogging? PM 6.4	How do I programme an adventure text? PM 6.5	How does the internet work? What is a network? PM 6.6	Are you smarter than a 10 year old? PM 6.7	

Computing Scheme of Work Overview Year 1

Year 1 Unit Overview

Unit 1.1 – Online Safety & Exploring Purple Mash

Lesson	Title	Success Criteria
1	Safe Logins	• Children can log in to Purple Mash using their own login. • Children have created their own avatar and understand why they are used. • Children can add their name to a picture they created on the computer. • Children are beginning to develop an understanding of ownership of work online. • Children can save work into the My Work folder in Purple Mash and understand that this is a private saving space just for their work.
2	My Work Area	• Children can find their saved work in the Online Work area of Purple Mash. • Children can find messages that their teacher has left for them on Purple Mash. • Children can search Purple Mash to find resources.
3	Purple Mash Topics	• Children will be able to use the different types of topic templates in the Topics section confidently. • Children will be confident with the functionality of the icons in the topic templates. • Children will know how to use the different icons and writing cues to add pictures and text to their work.
4	Purple Mash Tools	• Children have explored the Tools section on Purple Mash and become familiar with some of the key icons: Save, Print, Open and New. • Children have explored the Games section and looked at Table Toons (2x tables). • Children can log out of Purple Mash when they have finished using it and know why that is important.

Unit 1.2 – Grouping & Sorting

Lesson	Title	Success Criteria
1	Sorting Away from the Computer	• Children can sort various items offline using a variety of criteria.
2	Sorting on the Computer	• Children have used Purple Mash activities to sort various items online using a variety of criteria.

Unit 1.3 - Pictograms

Lesson	Title	Success Criteria
1	Data in Pictures	• Children can discuss and illustrate the transport used to travel to school. • Children can contribute to the collection of class data. • Children have used these illustrations to create a simple pictogram.
2	Class Pictogram	• Children can contribute to a class pictogram. • Children can discuss what the pictogram shows.
3	Recording Results	• Children can collect data from rolling a die 20 times and recording the results. • Children can represent the results as a pictogram.

Unit 1.4 – Lego Builders

Lesson	Title	Success Criteria
1	Following Instructions	• Children know that to achieve the effect they want when building something, they need to follow accurate instructions. • Children know that by following the instructions correctly, they will get the correct result. • Children know that an algorithm is a precise, step-by-step set of instructions used to solve a problem or achieve an objective.
2	Following and Creating Simple Instructions on the Computer.	• Children can follow instructions in a computer program. • Children can explain the effect of carrying out a task with no instructions. • Children know that computers need precise instructions to follow. • Children know that an algorithm written for a computer to follow is called a program.
3	To consider how the order of instructions affects the result.	• Children understand how the order in which the steps of a recipe are presented affects the outcome. • Children can organise instructions for a simple recipe. • Children know that correcting errors in an algorithm or program is called 'debugging'.

Unit 1.5 – Maze Explorers

Lesson	Title	Success Criteria
1	Challenges 1 and 2	• Children know how to use the direction keys in 2Go to move forwards, backwards, left and right. • Children know how to add a unit of measurement to the direction in 2Go Challenge 2. • Children know how to undo their last move. • Children know how to move their character back to the starting point.
2	Challenges 3 and 4	• Children can use diagonal direction keys to move the characters in the right direction. • Children know how to create a simple algorithm. • Children know how to debug their algorithm.
3	Challenges 5 and 6	• Children can use the additional direction keys to create a new algorithm. • Children can challenge themselves by using the longer algorithm to complete challenges.
4	Setting More Challenges	• Children can change the background images in their chosen challenge and save their new challenge. • Children have tried each other's challenges.

Unit 1.6 – Animated Story Books

Lesson	Title	Success Criteria
1	Drawing and Creating	• Children know the difference between a traditional book and an e-book. • Children can use the different drawing tools to create a picture on the page. • Children can add text to a page.
2	Animation	• Children can open previously saved work. • Children can add an animation to a page. • Children can play the pages created. • Children can save changes and overwrite the file.
3	Sounds and More!	• Children can add a sound to the page. • Children can add voice recording to the page. • Children can create music for a page.
4	Making a Story	• Children can add a background to the page. • Children can use the additional drawing tools on My Story mode. • Children can change the font style and size.
5	Copy and Paste	• Children can use the copy and paste function to add more pages to their animated e-book.

		• Children can share their e-books on a class story book display board.

Unit 1.7 – Coding

Lesson	Title	Success Criteria
1	Instructions	• Children can give and follow instructions. • Children can draw symbols to represent instructions. • Children can arrange code blocks to create a set of instructions.
2	Objects and Actions	• Children can create a program using code blocks. • Children can use object and action code blocks.
3	Events	• Children can create a simple program using code blocks. • Children can use event, object and action code blocks.
4	When Code Executes	• Children can create a simple program using code blocks. • Children can use event, object and action code blocks. • Children can notice when their code executes when their program is run.
5	Setting the Scene	• Children can edit a scene by adding, deleting and moving objects. • Children can change the size of objects using the properties table.
6	Using a Plan	• Children can create a design plan for their Free Code Scene program. • Children can use code to make the program they have designed work.

Unit 1.8 – Spreadsheets

Lesson	Title	Success Criteria
1	Introduction to Spreadsheets	• Children can navigate around a spreadsheet. • Children can explain what rows and columns are. • Children can save and open sheets. • Children can enter data into cells.
2	Adding Images to a Spreadsheet and Using the Image Toolbox	• Children can open the Image toolbox and find and add clipart. • Children can use the 'move cell' tool so that images can be dragged around the spreadsheet. • Children can use the 'lock' tool to prevent changes to cells.
3	Using the 'Speak' and 'Count' Tools in 2Calculate to Count Items	• Children can give images a value that the spreadsheet can use to count them. • Children can add the count tool to count items. • Children can add the speak tool so that the items are counted out loud. • Children can use a spreadsheet to help work out a fair way to share items (Extension)

Unit 1.9 – Technology outside school

Lesson	Title	Success Criteria
1	What is Technology?	• Children understand what is meant by 'technology'. • Children have considered types of technology used in school and out of school.
2	Technology outside school.	• Children have recorded 4 examples of where technology is used away from school.

English National Curriculum Objectives (Key Stage 1)

National Curriculum Objective	Strand	Units
Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.	Computer Science	1.2 1.4 1.5 1.7
Create and debug simple programs	Computer Science	1.5 1.7
Use logical reasoning to predict the behaviour of simple programs.	Computer Science	1.5 1.7
Use technology purposefully to create, organise, store, manipulate and retrieve digital content	Information Technology	1.3 1.6 1.7 1.8
Recognise common uses of information technology beyond school	Digital Literacy	1.9
Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	Digital Literacy	1.1

Computing Scheme of Work Overview Year 2

Year 2 Unit Overview

Unit 2.1 – Coding

Lesson	Title	Success Criteria
1	Algorithms	• Children can explain that an algorithm is a set of instructions. • Children can describe the algorithms they created. • Children can explain that for the computer to make something happen, it needs to follow clear instructions.
2	Collision Detection	• Children can plan an algorithm that includes collision detection. • Children can create a program using collision detection. • Children read blocks of code and predict what will happen when it is run.
3	Using a Timer	• Children can create a program that uses a timer-after command. • Children can explain what the timer-after command does in their program. • Children can predict what will happen in a program that includes a timer-after command.
4	Different Object Types	• Children can create a computer program that includes different objects types. • Children can modify the properties of an object. • Children can use different events in their program to make objects move.
5	Buttons	• Children can create a computer program that includes a button object. • Children can explain what a button does in their program. • Children can modify the properties of a button to fit their program design.

Unit 2.2 – Online Safety

Lesson	Title	Success Criteria
1	Searching and Sharing	• Children can use the search facility to refine searches on Purple Mash by year group and subject. • Children can share the work they have created to a display board. • Children understand that the teacher approves work before it is displayed. • Children are beginning to understand how things can be shared electronically for others to see both on Purple Mash and the Internet.
2	Email Using 2Respond	• Children know that Email is a form of digital communication. • Children understand how 2Repond can teach them how to use email. • Children can open and send an email to a 2Respond character. • Children have discussed their own experiences and understanding of what email is used for. • Children have discussed what makes us feel happy and what makes us feel sad.
3	Digital Footprint	• Children can explain what a digital footprint is. • Children can give examples of things that they would not want to be in their digital footprint.

Unit 2.3 - Spreadsheets

Lesson	Title	Success Criteria
1	Reviewing prior use of spreadsheets	• Children can explain what rows and columns are in a spreadsheet. • Children can open, save and edit a spreadsheet. • Children can add images from the image toolbox and allocate them a value. • Children can add the count tool to count items.
2	Copying and Pasting Totalling tools	• Children can use copying, cutting and pasting to help make spreadsheets. • Children can use tools in a spreadsheet to automatically total rows and columns. • Children can use a spreadsheet to solve a mathematical puzzle.
3	Using a spreadsheet to add amounts	• Children can use images in a spreadsheet. • Children can work out how much they need to pay using coins by using a spreadsheet to help calculate.
4	Creating a table and block graph	• Children can create a table of data on a spreadsheet. • Children can use the data to create a block graph manually.

Unit 2.4 – Questioning

Lesson	Title	Success Criteria
1	Using and Creating Pictograms	• Children understand that the information on pictograms cannot be used to answer more complicated questions.
2	Asking Yes / No Questions	• Children have used a range of yes/no questions to separate different items.
3	Binary Trees	• Children understand what is meant by a binary tree. • Children have designed a binary tree to sort pictures of children.
4	Using 2Question - a Computer-Based Binary Tree Program	• Children understand that questions are limited to 'yes' and 'no' in a binary tree. • Children understand that the user cannot use 2Question to find out answers to more complicated questions. • Children have matched 2Simple item pictures to names using a binary tree.

5	Using 2Investigate: a Non-Binary Database.	• Children understand what is meant by a database. • Children have used a database to answer simple and more complex search questions.

Unit 2.5 – Effective Searching

Lesson	Title	Success Criteria
1	Understanding the Internet and Searching	• Children can recall the meaning of key Internet and searching terms. • Children have completed a quiz about the Internet.
2	Searching the Internet	• Children can identify the basic parts of a web search engine search page. • Children have learnt to read a web search results page. • Children can search the Internet for answers to a quiz.
3	Sharing Knowledge of the Internet and Effective Searching	• Children have created a leaflet to consolidate knowledge of effective Internet searching.

Unit 2.6 – Creating Pictures

Lesson	Title	Success Criteria
1	Introduction and Impressionism	• Children can describe the main features of impressionist art. • Children can use 2Paint a Picture to create art based upon this style.
2	Pointillist Art	• Children can explain what pointillism is. • Children can use 2Paint a Picture to create art based upon this style.
3	Piet Mondrian	• Children can describe the main features of Piet Mondrian's work. • Children can use 2Paint a Picture to art based upon his style.
4	William Morris and Pattern	• Children can describe the main features of art that uses repeating patterns. • Children can use 2Paint a Picture to create art by repeating patterns in a variety of ways. • Children can combine more than one effect in 2Paint a Picture to enhance patterns.
5	Surrealism and eCollage	• Children can describe surrealist art.

		• Children can use the eCollage function in 2Paint a Picture to create surrealist art using drawing and clipart.

Unit 2.7 – Making Music

Lesson	Title	Success Criteria
1	Introducing 2Sequence	• Children understand what 2Sequence is and how it works. • Children have used the different sounds within 2Sequence to create a tune. • Children have explored how to speed up and slow down tunes. • Children understand what happens to the tune when sounds are moved.
2	Making Music	• Children have added sounds to a tune they have already created to change it. • Children have considered how music can be used to express feelings. • Children can change the volume of the background sounds. • Children have created two tunes which depict two feelings.
3	Soundtracks	• Children have uploaded and used their own sound chosen from a bank of sounds. • Children have created, uploaded and used their own recorded sound. • Children have created their own tune using some of the chosen sounds.

Unit 2.8 – Presenting Ideas

Lesson	Title	Success Criteria
1	Presenting a Story Three Ways	• Children have examined a traditional tale presented as a mind map, as a quiz, as an e-book and as a fact file. • Children know that digital content can be represented in many forms.
2	Presenting Ideas as a Quiz	• Children have made a quiz about a story using 2Quiz. • Children can talk about their work and make improvements to solutions based on feedback received.

3	Making a Non-Fiction Fact File	• Children have extracted information from a 2Connect file to make a publisher fact file on a non-fiction topic. • Children have added appropriate clipart. • Children have added an appropriate photo. • Children know that data can be structured in tables to make it useful.
4	Making a Presentation	• Children can use a variety of software to manipulate and present digital content and information. • Children can collect, organise and present data and information in digital content. • Children can create digital content to achieve a given goal by combining software packages.

English National Curriculum Objectives (Key Stage 1)

National Curriculum Objective	Strand	Units
Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.	Computer Science	2.1
Create and debug simple programs	Computer Science	2.1
Use logical reasoning to predict the behaviour of simple programs.	Computer Science	2.1
Use technology purposefully to create, organise, store, manipulate and retrieve digital content	Information Technology	2.3 2.4 2.5 2.6 2.7 2.8
Recognise common uses of information technology beyond school	Digital Literacy	2.5*
Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	Digital Literacy	2.2*

*And in other units when appropriate.

Computing Scheme of Work Overview Year 3

Year 3 Unit Overview

Unit 3.1 – Coding

Lesson	Title	Success Criteria
1	Using Flowcharts	• Children can read and explain a flowchart • Children can use a flowchart to create a computer program. • Children can create a computer program that uses click events and timers.
2	Using Timers	• Children can create a program that uses a timer-after command • Children can create a program that uses a timer-every command • Children understand there can be different ways to solve a problem.
3	Using Repeat	• Children understand how the turtle object moves. • Children can use the repeat command with an object. • Children can create a computer program that includes use of the repeat command.
4	Code, Test and Debug	• Children can create computer programs using prior knowledge. • Children can run, test and debug their programs. • Children can consider nesting when debugging their programs.
5 & 6	Design and Make an Interactive Scene	• Children can use the properties table to set the properties of objects. • Children can plan their scene and code before they create their program. • Children can confidently make several different things happen in a program.

Unit 3.2 – Online Safety

Lesson	Title	Success Criteria
1	Safety in Numbers	• Children understand what makes a good password for use on the Internet. Children are beginning to realise the outcomes of not keeping passwords safe. • Children can contribute to a concept map of all the different ways they know that the Internet can help us to communicate. • Children have contributed to a class blog with clear and appropriate messages. • Extension: Children understand that passwords help to limit who can see personal / private / confidential information.
2	Fact or Fiction?	• Children understand that some information held on websites may not be accurate or true. • Children are beginning to understand how to search the Internet and how to think critically about the results that are returned. • Children have accessed and assessed a 'spoof' website. • Children have created their own 'spoof' webpage mock-up. • Children have shared their 'spoof' web page on a class display board. • Extension: Children evaluate facts from a website and explain how they fact checked the information that was presented.
3	Appropriate Content & Ratings	• Children can identify some physical and emotional effects of playing/watching inappropriate content/games. • Children relate cyberbullying to bullying in the real-world and have strategies for dealing with online bullying including screenshot and reporting.

Unit 3.3 – Spreadsheets

Lesson	Title	Success Criteria
1	Creating Pie Charts and Bar Graphs	• Children can create a table of data on a spreadsheet. • Children can use a spreadsheet program to automatically create charts and graphs from data.
2	Using more than and Spin Button Tools	• Children can use the 'more than', 'less than' and 'equals' tools to compare different numbers and help to work out solutions to calculations. • Children can use the 'spin' tool to count through times tables.
3	Advanced Mode and Cell Addresses	• Children can describe a cell location in a spreadsheet using the notation of a letter for the column followed by a number for the row. • Children can find specified locations in a spreadsheet.

Unit 3.4 – Touch-typing

Lesson	Title	Success Criteria
1	Home, Top and Bottom Row Keys	• Children understand the names of the fingers. • Children understand what is meant by the home, bottom, and top rows. • Children have developed the ability to touch type the home, bottom, and top rows.
2	Home, Top and Bottom Row Keys (Consolidation)	• Children can use two hands to type the letters on the keyboard.
3	Left Keys	• Children can touch type using the left hand.
4	Right Keys	• Children can touch type using the right hand.

Unit 3.5 – Email

Lesson	Title	Success Criteria
1	Communication	• Children can list a range of different ways to communicate. • Children can use 2Connect to highlight the strengths and weaknesses of each method. • Extension: Children can order the various types of communication that have been used through history.
2	Composing Emails	• Children can open an email and respond to it. • Children have sent emails to other children in the class. • Extension: Children can use the search option in the address book to find a classmate when sending an email.
3	Using Email Safely: Part 1	• Children have written rules about how to stay safe using email. • Children have contributed to classmates' rules. • Extension: Children understand the importance of draft.
4	Using Email Safely: Part 2	• Children have created a quiz about email safety which explores scenarios that they could come across in the future. • Extension: Children create title screens for their quizzes explaining what the quiz is about, and how to play it.
5	Attachments	• Children can attach work to an email. • Children know what CC means and how to use it.
6	Email Simulations	• Children can read and respond to a series of email communications. • Children can attach files appropriately and use email communication to explore ideas. • Extension: Children know why the terms CC and BCC are used • Children understand when to use CC or BCC

Unit 3.6 – Branching Databases

Lesson	Title	Success Criteria
1	Introducing Databases	• Children understand how YES/NO questions are structured and answered. • Children have used YES/NO questioning to play a simple game with a friend. • Children can explain why they choose a particular question to split their database. • Extension: Children can begin to use 'or more' and 'or less' in their questioning
2	Branching Databases	• Children have contributed to a class branching database about fruit. • Children have completed a branching database about vegetables. • Extension: Children can edit and adapt a branching database to accommodate new entries.
3 and 4	Creating a branching database on the computer	• Children can choose a suitable topic for a branching database. • Children can select and save appropriate images. • Children can create a branching database. • Children know how to use and debug their own and others branching databases.

Unit 3.7 – Simulations

Lesson	Title	Success Criteria
1	What Are Simulations?	• Children know that a computer simulation can represent real and imaginary situations. • Children can give some examples of simulations used for fun and for work. • Children can give suggestions of advantages and problems of simulations.
2	Exploring a Simulation	• Children can explore a simulation. • Children can use a simulation to try out different options and to test predictions.

		• Children can begin to evaluate simulations by comparing them with real situations and considering their usefulness. • Children can analyse choices made using a branching database.
3	Analysing and Evaluating a Simulation	• Children can recognise patterns within simulations and make and test predictions. • Children can identify the relationships and rules on which the simulations are based. • Children can evaluate a simulation to determine its usefulness for purpose. • Children can create their own simple simulation (extension).

Unit 3.8 – Graphing

Lesson	Title	Success Criteria
1	Introducing 2Graph	• Children can set up a graph with a given number of fields. • Children can enter data for a graph. • Children can produce and share graphs made on the computer. • Extension: Children can select most appropriate style of graph for their data and explain their reasoning.
2	Using 2Graph to Solve an Investigation	• Children have solved a maths investigation. • Children can present the results in a range of graphical formats. • Children can use the sorting option to make analysis of their data easier. • Extension: Children can select most appropriate style of graph for their data and explain their reasoning.

Unit 3.9 – Presenting (with Microsoft PowerPoint)

Downloaded Version of MS PowerPoint

Lesson	Title	Success Criteria
1	Making a Presentation from a Blank Page	• Children know what PowerPoint is. • Children can open PowerPoint. • Children can add text to a page and format it. • Children can add shapes to a page.
2	Adding Media	• Children can change the design of the slides. • Children can insert a new slide. • Children can insert pictures. • Children can edit pictures. • Children can insert video and audio.
3	Adding Animation	• Children can use animations in a presentation. • Children can use transitions in a presentation.
4	Presenting with Timings	• Children can add timings to a presentation. • Children can present effectively using PowerPoint.
5 & 6	Create a Presentation	• Children can create a presentation including formatted text. • Children can include different media. • Children can add transitions and animations. • Children can add timings to the presentation. • Children can present effectively.

Online Version of MS PowerPoint

Lesson	Title	Success Criteria
1	Making a Presentation from a Blank Page	• Children know what PowerPoint is. • Children can open PowerPoint. • Children can add text to a page and format it. • Children can add shapes to a page.
2	Adding Media	• Children can change the design of the slides. • Children can insert a new slide. • Children can insert pictures. • Children can edit pictures. • Children can insert video and audio.
3	Adding Animation	• Children can use animations in a presentation.

		• Children can use transitions in a presentation.
4 & 5	Create a Presentation	• Children can create a presentation including formatted text. • Children can include different media. • Children can add transitions and animations. • Children can add timings to the presentation. • Children can present effectively.

Unit 3.9 – Presenting (with Google Slides)

PC\Mac Version of Google Slides

Lesson	Title	Success Criteria
1	Making a Presentation from a Blank Page	• Children know what Google Slides is. • Children know how to open Google Slides. • Children can add text and format it.
2	Adding Media	• Children can change the design of the slides. • Children can insert a new slide. • Children can insert pictures. • Children can edit pictures. • Children can insert video (extension).
3	Adding Shapes and Lines	• Children can add shapes to a presentation. • Children can add lines into a presentation.
4	Adding Animation	• Children can use animations in a presentation. • Children can use transitions in a presentation.
5 & 6	Create a Presentation	• Children can add text to a presentation. • Children can add objects including text and pictures to their presentation. • Children can add animation and transitions to their presentation. • Children can present their work on Slides.

Tablet App for Google Slides

Lesson	Title	Success Criteria
1	Making a Presentation from a Blank Page	• Children know what Google Slides is. • Children know how to open Google Slides. • Children know how to add text and format it.
2	Adding Images	• Children can change the design of the slides. • Children can insert a new slide. • Children can insert pictures.
3	Adding Shapes and Lines	• Children can add shapes to a presentation. • Children can add lines into a presentation.
4 & 5	Creating a Presentation	• Children can create a presentation including formatted text. • Children can add objects including text and pictures. • Children can present their work on Slides.

English National Curriculum Objectives (Key Stage 2)

National Curriculum Objective	Strand	Units
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	Computer Science	3.1
Use sequence, selection and repetition in programs; work with variables and various forms of input and output.	Computer Science	3.1
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	Computer Science	3.1
Understand computer networks, including the Internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration.	Computer Science	3.5
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	Information Technology	
Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	Information Technology	3.3 3.4 3.5 3.6 3.7 3.8 3.9
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Digital Literacy	3.2 3.5 3.9

Computing Scheme of Work Overview Year 4

Year 4 Unit Overview

Unit 4.1 – Coding

Lesson	Title	Success Criteria
1	Design, Code, Test and Debug	• Children can explore different object types in 2Code. • Children can use a background and objects to create a scene. • Children can plan an algorithm for their scene and use 2Code to program it.
2	IF Statements	• Children can create a program that includes an IF statement. • Children can interpret a flowchart that depicts an IF statement.
3	Co-ordinates	• Children can make use of the X and Y properties of objects in their coding. • Children can create a program that includes an IF statement.
4	Repeat Until and IF/ELSE Statements	• Children can read code that includes repeat until and IF/ ELSE and explain how it works. • Children can create a program that includes an IF/ ELSE statement. • Children can interpret a flowchart that depicts an IF/ ELSE statement.
5	Number Variables	• Children can explain what a variable is in programming. • Children can create and use variables when programming.
6	Making a Playable Game	• Children can read code that includes repeat until and IF/ ELSE and explain how it works. • Children can create a program that includes and IF/ ELSE statement. • Children can interpret a flowchart that depicts an IF/ ELSE statement.

Unit 4.2 – Online Safety

Lesson	Title	Success Criteria
1	Going Phishing	• Children know that security symbols such as a padlock protect their identity online. • Children know the meaning of the term 'phishing' and are aware of the existence of scam websites. • Children can explain what a digital footprint is and how it relates to identity theft. • Children can give examples of things that they would not want to be in their digital footprint.
2	Beware Malware	• Children can identify possible risks of installing free and paid for software. • Children know that malware is software that is specifically designed to disrupt, damage, or gain access to a computer. • Children know what a computer virus is.
3	Plagiarism	• Children can determine whether activities that they undertake online, infringe another's' copyright. They know the difference between researching and using information and copying it Children know about citing sources that they have used.
4	Healthy Screen-Time	• Children can take more informed ownership of the way that they choose to use their free time. They recognise a need to find a balance between being active and digital activities. • Children can give reasons for limiting screen time.

Unit 4.3 - Spreadsheets

Lesson	Title	Success Criteria
1	Formula Wizard and Formatting Cells	• Children can use the number formatting tools within 2Calculate to appropriately format numbers. • Children can add a formula to a cell to automatically make a calculation in that cell.
2	Using the Timer and Spin Buttons	• Children can use the timer, random number and spin button tools. • Children can combine tools to make fun ways to explore number.

3	Line Graphs	• Children can use a series of data in a spreadsheet to create a line graph. • Children can use a line graph to find out when the temperature in the playground will reach 20°C.
4	Using a Spreadsheet for Budgeting	• Children can make practical use of a spreadsheet to help them plan actions. • Children can use the currency formatting in 2Calculate.
5	Exploring Place Value with a Spreadsheet	• Children can allocate values to images and use these to explore place value. • Children can use a spreadsheet made in 2Calculate to check their understanding of a mathematical concept.

Unit 4.4 – Writing for Different Audiences

Lesson	Title	Success Criteria
1	Font Styles	• Children can look at and discuss a variety of written material where the font size and type are tailored to the purpose of the text. • Children can use text formatting to make a piece of writing fit for its audience and purpose.
2 & 3	Using a Simulated Scenario to Produce a News Report	• Children can role-play the job of a journalist in a newsroom. • Children can interpret a variety of incoming communications and use these to build up the details of a story. • Children can use the incoming information to write their own newspaper report.
4 & 5	Writing for a Campaign	• Children can use 2Connect to mind-map ideas for a community campaign. • Children can use these ideas to write a persuasive letter or poster as part of the campaign. • Children can assess their texts using criteria to judge their suitability for the intended audience.

Unit 4.5 – Logo

Lesson	Title	Success Criteria
1	Introduction to 2Logo	• Children know what the common instructions are in 2Logo and how to type them. • Children can follow simple 2Logo instructions to create shapes on paper. • Children can follow simple instructions to create shapes in 2Logo.
2	Creating Letters using 2Logo	• Children can create 2Logo instructions to draw patterns of increasing complexity. • Children understand the pu and pd commands. • Children can write 2Logo instructions for a word of four letters.
3	Using the 'Repeat' Command in 2Logo	• Children can follow 2Logo code to predict the outcome. • Children can create shapes using the Repeat command. • Children can find the most efficient way to draw shapes.
4	Using Procedures	• Children can use the Procedure feature. • Children can create 'flowers' or 'crystals' using 2Logo.

Unit 4.6 – Animation

Lesson	Title	Success Criteria
1	Animating an Object	• Children have put together a simple animation using paper to create a flick book. • Children understand animation frames. • Children have made a simple animation using 2Animate.
2	2Animate Tools	• Children know what the Onion Skin tool does in animation. • Children can use the Onion Skin tool to create an animated image.

		• Children can use backgrounds and sounds to make more complex and imaginative animations.
3	Stop Motion Animation	• Children know what 'stop motion' animation is and how it is created. • Children have used ideas from existing 'stop motion' films to recreate their own animation. • Children have shared their animations and commented on each other's work using display boards and blogs in Purple Mash.

Unit 4.7 – Effective Searching

Lesson	Title	Success Criteria
1	Using a Search Engine	• Children can structure search queries to locate specific information.
2	Use Search Effectively to Answer Questions	• Children have used search to answer a series of questions. • Children have written search questions for a friend to solve.
3	Reliable Information Sources	• Children can analyse the contents of a web page for clues about the credibility of the information.

Unit 4.8 – Hardware Investigators

Lesson	Title	Success Criteria
1	Hardware	• Children can name the different parts of a desktop computer. • Children know what the function of the different parts of a computer is.
2	Parts of a Computer	• Children have created a leaflet to show the function of computer parts.

Unit 4.9 – Making Music

Lesson	Title	Success Criteria
1	Understanding Music	• Children can use appropriate musical language to discuss a piece of music. • Children can identify sounds in a piece of music. • Children can explain how a piece of music makes them feel.
2	Rhythm and Tempo.	• Children can identify and recall a simple rhythm. • Children can explain what tempo is, and how changing it can change the mood of a piece of music. • Children can create their own simple rhythm using Busy Beats.
3	Melody and Pitch	• Children can show an understanding of melody. • Children can create a simple melodic pattern using 2Sequence and Busy Beats. • Children can use a variety of notes, experimenting with pitch.
4	Creating Music	• Children can explore and understand how music is created. • Children can experiment with pitch, rhythm, and melody to create a piece of house music on Busy Beats.

English National Curriculum Objectives (Key Stage 2)

National Curriculum Objective	Strand	Units
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	Computer Science	4.1 4.5
Use sequence, selection and repetition in programs; work with variables and various forms of input and output.	Computer Science	4.1 4.5
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	Computer Science	4.1 4.5
Understand computer networks, including the Internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration.	Computer Science	4.2 4.7 4.8
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	Information Technology	4.7
Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	Information Technology	4.1 4.3 4.4 4.6 4.9
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Digital Literacy	4.2*

*And discussed in other units

Computing Scheme of Work Overview Year 5

Year 5 Unit Overview

Unit 5.1 – Coding

Lesson	Title	Success Criteria
1	Coding Efficiently	• Children can use simplified code to make their programming more efficient. • Children can use variables in their code. • Children can create a simple playable game.
2	Simulating a Physical System	• Children can plan an algorithm modelling the sequence of traffic lights. • Children can select the right images to reflect the simulation they are making. • Children can use their plan to program the simulation to work in 2Code.
3	Decomposition and Abstraction	• Children can make good attempts to break down their task into smaller achievable steps. • Children recognise the need to start coding at a basic level of abstraction to remove superfluous details from their program that do not contribute to the aim of the task.
4 & 5	Friction and Functions	• Children can create a program which represents a physical system. • Children can create and use functions in their code to make their programming more efficient.
6	Introducing Strings	• Children can create and use strings in programming. • Children can set/change variable values appropriately. • Children know some ways that text variables can be used in coding.

Unit 5.2 – Online Safety

Lesson	Title	Success Criteria
1	Responsibilities and Support when Online	• Children critically about the information that they share online both about themself and others. • Children know who to tell if they are upset by something that happens online. • Children can use the SMART rules as a source of guidance when online.
2	Protecting Privacy	• Children think critically about what they share online, even when asked by a usually reliable person to share something. • Children have clear ideas about good passwords. • Children can see how they can use images and digital technology to create effects not possible without technology. • Children have experienced how image manipulation could be used to upset them or others even using simple, freely available tools and little specialist knowledge.
3	Citing Sources	• Children can cite all sources when researching and explain the importance of this. • Children select keywords and search techniques to find relevant information and increase reliability.
4	Reliability	• Children show an understanding of the advantages and disadvantages of different forms of communication and when it is appropriate to use each.

Unit 5.3 - Spreadsheets

Lesson	Title	Success Criteria
1	Conversions of Measurements	• Children can create a formula in a spreadsheet to convert m to cm. • Children can apply this to creating a spreadsheet that converts miles to km and vice versa.
2	The Count Tool	• Children can use a spreadsheet to work out which letters appear most often. • Children can use the 'how many' tool.
3	Formulae Including the Advanced Mode	• Children can use a spreadsheet to work out the area and perimeter of rectangles.

		• Children can use these calculations to solve a real-life problem.
4	Using Text Variables to Perform Calculations	• Children can create simple formulae that use different variables. • Children can create a formula that will work out how many days there are in x number of weeks or years.
5	Event Planning with a Spreadsheet	• Children can use a spreadsheet to model a real-life situation and come up with solutions that can be practically applied.

Unit 5.4 – Databases

Lesson	Title	Success Criteria
1	Searching a Database	• Children understand the different ways to search a database. • Children can search a database to answer questions correctly.
2	Creating a Class Database	• Children can design an avatar for a class database. • Children can successfully enter information into a class database.
3 & 4	Creating a Topic Database	• Children can create their own database on a chosen topic. • Children can add records to their database. • Children know what a database field is and can correctly add field information. • Children understand how to word questions so that they can be effectively answered using a search of their database.

Unit 5.5 – Game Creator

Lesson	Title	Success Criteria
1	Setting the scene.	• Children can review and analyse a computer game. • Children can describe some of the elements that make a successful game. • Children can begin the process of designing their own game.
2	Creating the Game Environment	• Children can design the setting for their game so that it fits with the selected theme. • Children can upload images or use the drawing tools to create the walls, floor, and roof.
3	The Game Quest	• Children can design characters for their game. • Children can decide upon, and change, the animations and sounds that the characters make.
4	Finishing and Sharing	• Children can make their game more unique by selecting the appropriate options to maximise the playability. • Children can write informative instructions for their game so that other people can play it.
5	Evaluation	• Children can evaluate my their own and peers' games to help improve their design for the future.

Unit 5.6 – 3D Modelling

Lesson	Title	Success Criteria
1	Introducing 2Design and Make	• Children know what the 2Design and Make tool is for. • Children can explore the different viewpoints in 2Design and Make whilst designing a building.
2	Moving Points	• Children can adapt one of the vehicle models by moving the points to alter the shape of the vehicle while still maintaining its form.
3	Designing for a Purpose	• Children can explore how to edit the polygon 3D models to design a 3D model for a purpose.
4	Printing and Making	• Children can refine one of their designs to prepare it for printing. • Children can print their design as a 2D net and then created a 3D model. • Children can explore the possibilities of 3D printing.

Unit 5.7 – Concept Maps

Lesson	Title	Success Criteria
1	Introduction to Concept Mapping	• Children can make connections between thoughts and ideas. • Children can see the importance of recording concept maps visually.
2	Using 2Connect	• Children understand what is meant by 'concept maps', 'stage', 'nodes' and 'connections.' • Children can create a basic concept map.
3	2Connect Story Mode	• Children have used 2Connect Story Mode to create an informative text.
4	Collaborative Concept Maps	• Children have used 2Connect collaboratively to create a concept map. • Children have used Presentation Mode to present their concept maps to an audience.

Unit 5.8 – Word Processing (with Microsoft Word)

Lesson	Title	Success Criteria
1	Making a Document from a Blank Page	• Children know what a word processing tool is for. • Children will be able to create a word processing document altering the look of the text and navigating around the document.
2	Inserting Images: Considering Copyright	• Children know how to add images to a word document. • Children can edit images to reduce their file size. • Children know the correct way to search for images that they are permitted to reuse. • Children know how to attribute the original artist of an image.
3	Editing Images in Word	• Children can edit their images within Word to best present them alongside text. • Children understand wrapping of images and text.
4	Adding the Text	• Children can add appropriate text to their document, formatting in a suitable way. • Children can use a style set in Word. • Children can use bullet points and numbering.
5	Finishing Touches	• Children can add text boxes and shapes. • Children can consider paragraph formatting such as line spacing, drop capitals. • Children can add hyperlinks to an external website. • Children can add an automated contents page.
6	Presenting Information Using Tables	• Children can add tables to present information.

		• Children can edit properties of tables including borders, colours, merging cells, adding and removing rows and columns. • Children can add word art for a heading.
7	Writing a Letter Using a Template	• Children can use a Word template and edit it appropriately.
8	Presenting Information - Newspaper	• Children can format a page using a combination of images, headers and columns.

Unit 5.8 – Word Processing (with Google Docs)

Lesson	Title	Success Criteria
1	Making a Document from a Blank Page	• Children know what a word processing tool is for. • Children will be able to create a word processing document, altering the look of the text and navigating around the document.
2	Inserting Images: Considering Copyright	• Children know how to add images to a document. • Children know the correct way to search for images that they are permitted to reuse. • Children know how to attribute the original artist of an image.
3	Editing Images	• Children can edit their images within Docs to best present them alongside text. • Children understand wrapping of images and text.
4	Adding the Text	• Children can add appropriate text to their document, formatting in a suitable way. • Children can use styles to format a document. • Children can use bullet points and numbering.
5	Finishing Touches	• Children can add text boxes and shapes. • Children can use page breaks, headers and footers. • Children can add hyperlinks to places in the document and to an external website. • Children can add an automated contents page.

6	Sharing Files	• Children can share their documents with selected users. • Children understand the different permissions when sharing in Google docs. • Children can share using a share link.
7	Presenting Information Using Tables	• Children can create a vector drawing in their document. • Children can add tables to present information. • Children can edit properties of tables including borders, colours, merging cells, adding and removing rows and columns.
8	Writing a Letter Using a Template	• Children can use a template and edit it appropriately. • Children can use the spelling and grammar tools built into Google docs. • (Optional) Children know how to save a document as a pdf and the reasons for doing this. • (Optional) Children know how to print their documents and can print ranges of pages.

English National Curriculum Objectives (Key Stage 2)

National Curriculum Objective	Strand	Units
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	Computer Science	5.1 5.5
Use sequence, selection and repetition in programs; work with variables and various forms of input and output.	Computer Science	5.1
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	Computer Science	5.1
Understand computer networks, including the Internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration.	Computer Science	5.2
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	Information Technology	Various Search technologies are taught more specifically in unit 4.7. Children will utilize this knowledge in many Internet based sessions in all areas of the curriculum.
Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	Information Technology	5.1 5.3 5.4 5.5 5.6 5.7 5.8
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Digital Literacy	5.2 and discussed in other units

Computing Scheme of Work Overview Year 6

Year 6 Unit Overview

Unit 6.1 – Coding

Lesson	Title	Success Criteria
1 &2	Designing and Making a more Complex Program	• Children can plan a program which includes a timer and a score. • Children can follow their plans to create a program. • Children can debug when things do not run as expected.
3	Using Functions	• Children can create a program that makes use of functions. • Children can create a program that uses multiple functions with the code arranged in tabs. • Children can explain how their code executes when their program is run.
4	Flowcharts and Control Simulations	• Children can follow flowcharts to create and debug code. • Children can create flowcharts for procedures. • Children can be creative with the way they code to generate novel visual effects.
5	User Input	• Children can code programs that take text input from the user and use this in the program. • Children can attribute variables to user input. • Children are aware of the need to code for all possibilities when using user input.
6	Using Text-based Adventures	• Children can follow through the code of how a text adventure can be programmed in 2Code. • Children can design their own text-based adventure game based on one they have played. • Children can adapt an existing text adventure so it reflects their own ideas.

Unit 6.2 – Online Safety

Lesson	Title	Success Criteria
1	Message in a Game	• Children have used the example game and further research to refresh their memories about risks online including sharing location, secure websites, spoof websites, phishing, and other email scams. • Children have used the example game and further research to refresh their memories about the steps they can take to protect themselves including protecting their digital footprint, where to go for help, smart rules and security software.
2	Online Behaviour	• Children understand how what they share impacts upon themselves and upon others in the long-term. • Children know about the consequences of promoting inappropriate content online and how to put a stop to such behaviour when they experience it or witness it as a bystander. • **Extension:** Children' actions demonstrate that they also feel a responsibility to others when communicating and sharing content online.
3	Screen Time	• Children can take more informed ownership of the way that they choose to use their free time. They recognise a need to find a balance between being active and digital activities. • Children can give reasons for limiting screen time. • Children can talk about the positives and negative aspects of technology and balance these opposing views. • **Extension:** Children have an internalised in-depth understanding of the risks and benefits of an online presence.

Unit 6.3 - Spreadsheets

Lesson	Title	Success Criteria
1	Exploring Probability	• Children can create a spreadsheet to answer a mathematical question relating to probability. • Children can take copy and paste shortcuts. • Children can problem solve using the count tool.
2	Creating a Computational Model	• Children can create a machine to help work out the price of different items in a sale. • Children can use the formula wizard to create formulae. • Children can use a spreadsheet to solve a problem.
3	Use a Spreadsheet to Plan Pocket Money Spending	• Children can use a spreadsheet to model a real-life situation and come up with solutions. • Children can make practical use of a spreadsheet to help plan actions.
4 & 5	Planning a School Event	• Children can use a spreadsheet to model a real-life situation and come up with solutions that can be applied to real life.

Unit 6.4 – Blogging

Lesson	Title	Success Criteria
1	What is a Blog?	• Children understand how a blog can be used as an informative text. • Children understand the key features of a blog.
2	Planning a Blog	• Children can work collaboratively to plan a blog.
3	Writing a Blog	• Children can create a blog or blog post with a specific purpose. • Children understand that the way in which information is presented has an impact upon the audience.
4	Sharing Posts and Commenting	• Children can post comments and blog posts to an existing class blog. • Children understand the approval process that their posts go through and demonstrate an awareness of the issues

		surrounding inappropriate posts and cyberbullying. • Children can assess the effectiveness and impact of a blog. • Children understand that content included in their blog carefully considers the end user.

Unit 6.5 – Text Adventures

Lesson	Title	Success Criteria
1	What Is a Text Adventure? Planning a Story Adventure	• Children can describe what a text adventure is. • Children can map out a story-based text adventure. • Children can use 2Connect to record their ideas. • **Extension:** Children can turn a simple story with 2 or 3 levels of decision making into a logical design
2	Making a Story-based Adventure Game	• Children can use the full functionality of 2Create a Story Adventure mode to create, test and debug using their plan. • Children can split their adventure-game design into appropriate sections to facilitate creating it.
3	Introducing Map-Based Text Adventures	• Children can map out an existing text adventure. • Children can contrast a map-based game with a sequential story-based game. • **Extension:** Children can make a comprehensive design map with a sequence of rooms including rooms in which the player needs to make a choice and collect items in a certain order to complete the game.
4	Coding a Map-Based Text Adventure	• Children can create their own text-based adventure based upon a map. • Children can use coding concepts of functions, two-way selection (if/else statements) and repetition in conjunction with one another to code their game. • Children make logical attempts to debug their code when it does not work correctly.

Unit 6.6 – Networks

Lesson	Title	Success Criteria
1	The World Wide Web and the Internet	• Children know the difference between the World Wide Web and the internet. • **Extension:** Children can provide examples of the difference between the World Wide Web and the Internet.
2	Our School Network and Accessing the Internet	• Children know about their school network. • **Extension:** Children can explain the differences between more than two network types such as: LAN, WAN, WLAN and SAN.
3	Research	• Children have researched and found out about Tim Berners-Lee. • Children have considered some of the major changes in technology which have taken place during their lifetime and the lifetime of their teacher/another adult.

Unit 6.7 – Quizzing

Lesson	Title	Success Criteria
1	Introducing 2DIY	• Children have used the 2DIY activities to create a picture-based quiz. • Children have considered the audience's ability level and interests when setting the quiz. • Children have shared their quiz and responded to feedback.
2 & 3	Using 2Quiz	• Children understand the different question types within 2Quiz. • Children have ideas about what sort of questions are best suited to the different question types. • Children have used 2Quiz to make and share a science quiz (or another subject). • Children have considered the audience's ability level and interests when setting the quiz. • Children have shared their quiz with peers. • Children have given and responded to feedback.

4	Exploring Grammar Quizzes	• Children have tried out the different types of Text Toolkit grammar games. • Children have chosen an appropriate Text Toolkit tool to make their own grammar game(s).
5	A Database Quiz	• Children have used a 2Investigate quiz to answer quiz questions. • Children have designed their own quiz based on one of the 2Investigate example databases.
6	Are you Smarter than a 10- (or 11-) Year-Old?	• Children have used their knowledge of quiz types to create a quiz show quiz based on a curriculum area.

Unit 6.8– Understanding Binary

Lesson	Title **Examine how whole numbers are used as the basis for representing all types of data in digital systems through:**	Success Criteria **Children have an understanding of binary as a number system and its purpose and application in computing.**
1	What is Binary?	• Children can explain how all data in a computer is saved in the computer memory in a binary format. • Children can explain that binary uses only the integers 0 and 1. • Children can relate 0 to an 'off' switch and 1 to and 'on' switch.
2	Counting in Binary	• Children can count up from 0 in binary using visual aids if needed. • Children can relate bits to computer storage.
3	Converting from Decimal to Binary	• Children can convert numbers to binary using the division by two method. • Children can check their own answers using the converter tool.
4	Game States	• Children can make use of a variable set to 0 or 1 to control game states.

Unit 6.9– Spreadsheets (with Microsoft Excel)

Lesson	Title	Success Criteria
1	What is a Spreadsheet?	• Children know some uses of a spreadsheet tool. • Children can navigate around a spreadsheet using cell references. • Children can enter data into cells. • Children understand new vocabulary relating to spreadsheets: cells, columns, rows, cell names, sheets, workbook.
2	Basic Calculations	• Children can use a spreadsheet to carry out basic calculations including addition, subtraction, multiplication and division formulae. • Children can use the series fill function. • Children recognise how using formulae allows the data to change and the calculations to update automatically.
3	Modelling	• Children can use a spreadsheet to model a situation. • Children can use a spreadsheet to solve a problem. • Children can use the SUM function
4	Organising Data	• Children can use a variety of methods including flash fill, convert text to tables and splitting cells for organising and presenting their data in a spreadsheet. • Children know what is meant by a delimiter. • Children understand how to sort data.
5	Advanced Formulae and Big Data	• Children know how to incorporate formulae for percentages, averages, max and min into their spreadsheets. • Children gain familiarity with range notation in Excel. • Children know some shortcuts that help to make data meaningful. • Children begin to develop a critical eye when it comes to the conclusions that can be made from data.

6	Charts and Graphics	• Children know that there are ways to represent their data graphically and that Excel can make these calculations for them. • Children gain an understanding of how a graphical representation can make data easier to interpret. • Children make a chart using Excel recommendations. • Children illustrate their data using sparklines and data bars.
7	Using a Spreadsheet to Plan a Cake Sale	• Children can understand how a spreadsheet can be used to plan an event. • Children understand the advantages of using formulae when data is subject to change • Children have modelled a real-life situation using a spreadsheet.
8	Using a Spreadsheet to Solve Problems	• To apply all new spreadsheet skills to solving problems and presenting data. • To explore printing Excel sheets.

Unit 6.9– Spreadsheets (with Google sheets)

Lesson	Title	Success Criteria
1	What is a Spreadsheet?	• Children know some uses of a spreadsheet tool. • Children can navigate around a spreadsheet using cell references. • Children can enter data into cells. • Children understand new vocabulary relating to spreadsheets: cells, columns, rows, cell names, sheets, workbook.
2	Basic Calculations	• Children can use a spreadsheet to carry out basic calculations including addition, subtraction, multiplication and division formulae. • Children can use the series fill function. • Children recognise how using formulae allows the data to change and the calculations to update automatically.
3	Modelling	• Children can use a spreadsheet to model a situation.

		• Children can use a spreadsheet to solve a problem. • Children can use the SUM function
4	Organising Data	• Children can use a variety of methods including flash fill, convert text to tables and splitting cells for organising and presenting their data in a spreadsheet. • Children know what is meant by a delimiter. • Children understand how to sort data.
5	Advanced Formulae and Big Data	• Children know how to incorporate formulae for percentages, averages, max and min into their spreadsheets. • Children gain familiarity with range notation. • Children know some shortcuts that help to make data meaningful. • Children begin to develop a critical eye when it comes to the conclusions that can be made from data.
6	Charts and Graphics	• Children know that there are ways to represent their data graphically and that spreadsheets can make the process of representing data easier. • Children gain an understanding of how a graphical representation can make data easier to interpret. • Children make a variety of charts using Sheets. • Children illustrate their data using sparklines and data bars.
7	Using a Spreadsheet to Plan a Cake Sale	• Children can understand how a spreadsheet can be used to plan an event. • Children understand the advantages of using formulae when data is subject to change. • Children have modelled a real-life situation using a spreadsheet.
8	Using a Spreadsheet to Solve Problems	• To apply all new spreadsheet skills to solving problems and presenting data. • To explore printing spreadsheets.

English National Curriculum Objectives (Key Stage 2)

National Curriculum Objective	Strand	Units
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	Computer Science	6.1 6.5, 6.9
Use sequence, selection and repetition in programs; work with variables and various forms of input and output.	Computer Science	6.1
Use sequence, selection and repetition in programs; work with variables and various forms of input and output.	Computer Science	6.5
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	Computer Science	6.1 6.5, 6.9
Understand computer networks, including the Internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration.	Computer Science	6.2
Understand computer networks, including the Internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration.	Computer Science	6.4
Understand computer networks, including the Internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration.	Computer Science	6.6
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	Information Technology	6.2
Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	Information Technology	6.1, 6.3 6.4, 6.5 6.7, 6.9
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact*.	Digital Literacy	6.2 6.4