Girlington Primary School Computing Curriculum

Purpose of Study

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

Aims

The national curriculum for computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.

Subject content

Key stage 1

Pupils should be taught to:

- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs
- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school
- 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.

Key stage 2

Pupils should be taught to:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- 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
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content

- 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
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

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Year 1

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Prior EYFS Learning	To look at photos, identify features and to take photos using a device. To take appropriate actions before using technology and understand why food should be kept away from devices. To identify the main parts of a computer. To select colours, mark make purposefully and control tools to experiment with. To erase parts of pictures, draw using a touch screen and to draw using mouse control or a whiteboard pen. To record spoken words and play this back. To describe a route, plan routes for toy vehicles and follow plans for toy vehicles. To use the buttons on a floor robot to make it move and interpret simple instructions to predict an outcome. To know the technology used in the home, to know how technology is used outdoors and in the wider world.					
Topic	Online Safety Grouping and Sorting	Pictograms Lego Builders Animated Books	Animated Books Coding	Coding Maze Explorers	Coding Animated Books	Spreadsheets Technology Outside of School
National Curriculum Subject Content						
Computer Science	To sort various items online and offline using a variety of criteria.	Children can follow instructions in a computer program. To know that an algorithm written for a computer to follow is called a program. To understand how the order in which the steps are presented affects the outcome. To know that correcting errors in an algorithm or program is called 'debugging'.	Give and follow instructions. To draw symbols to represent instructions. To arrange code blocks to create a set of instructions. To create a program using code blocks. To use object and action code blocks.	To create a simple program using code blocks. To use event, object and action code blocks. To notice when their code executes when their program is run. To understand the functionality of the basic direction keys. To understand how to create and debug a set of instructions.	To edit a scene by adding, deleting and moving objects. To change the size of objects using the attributes of a table. To create a design plan for their Free Code Scene program. To use code to make the program they have designed work.	
Information Technology		To contribute to the collection of class data. To create a simple pictogram. And discuss what it shows. To collect data from a rolling die and represent in a pictogram. To know the difference between a traditional book and an e-book. To use the different drawing tools to create a picture on the page. To add text to a page.	To add an animation to a page and play the pages created. To save changes and overwrite the file. Add a sound and voice recording to the page. To create music for a page.		To add a background to a story. To demonstrate a good understanding of all the tools they have used in 2Create a Story and use these successfully to create their own story. To use the copy and paste feature to create additional pages. To continue and complete an animated story. To create a class display board of the story books created by the class.	To understand what a spreadsheet looks like and navigate around a spread sheet and enter data. To learn new vocabulary related to spreadsheets. To add clipart images to a spreadsheet. To use the 'move cell', 'lock' tools, 'speak' and 'count' tools in 2Calculate to count items.
Digital Literacy	To use own login. Create an avatar and understand why they are used. To add their name to a picture they created on the computer. To save work and understand that this is a private saving space just for their work. To use the different icons and writing cues to add pictures and text to their work. To log out when they have finished and know why this is important.					To find and understand examples of where technology is used in the local community. To record examples of technology outside school.
Activities	First week and throughout the term practise logging on and off the computer, using icons on the and developing keyboard skills. **Unit 1:1: Online Safety & Exploring Purple Mash** Lesson 1: Safe logins Lesson 2: My work area Lesson 3: Purple Mash Topics Lesson 4: Purple Mash tools **Unit1:2 – Grouping and Sorting** Lesson 1 : Sorting (Complete in maths lesson) Lesson 2: Sorting on the computer	**Unit 1:3: Pictograms** Lesson 1: Data in pictures (To complete in maths lesson) Lesson 2: Class pictogram Lesson 3: Recording results **Unit 1:4 : Lego Builders** Lesson 1: Following instructions Lesson 2: Following and creating simple instructions on the computer. Lesson 3: To consider how the order of instructions effects the result. **Unit 1:6: Animated Books** Lesson 1: Drawing and creating	**Unit 1:6: Animated Books** Lesson 2: Animation Lesson 3: Sounds and more **Unit 1:7 : Coding** Lesson 1: Instructions Lesson 2: Objects and actions. **(To complete coding lessons over 3 weeks)** **Safer Internet Day Lesson**	**Unit 1:7 : Coding** Lesson 3: Events Lesson4: When codes execute. **(To complete coding lessons over 3 weeks)** **Unit 1:5: Maze Explorers** Lesson 1: Challenges 1 and 2 – direction keys Lesson 2: Challenges 3 and 4- Debug instructions Lesson 3: Challenges 5 and 6 – Change and extend algorithm	**Unit 1:7 : Coding** Lesson 5: Setting the scene Lesson 6: Using a plan (To complete coding lessons over 3 weeks) **Unit 1:6: Animated Books** Lesson 4: Making a story Lesson 5: Copy and paste	**Unit 1:8: Spreadsheets** Lesson 1: Introduction to spreadsheets Lesson 2: Adding images to a spreadsheet Lesson 3: Using the 'Speak' and 'Count' tools in 2Calculate to count items **(To complete over 4 lessons)** **Unit 1:9: Technology Outside of School** Lesson 1: What is technology? Lesson 2: Technology outside of school.
Vocabulary	Login Password Private Home screen Avatar Saving Log out Alert Menu Notification Search Filter Shared folder File Name Textbox Tool bar Button Sort More than Less than Equal Groups Activities	Data Pictogram Visual Collect Record Compare Totals Title Instructions Program Algorithm machine Computer Code Debugging Sequence E-Book Eraser Undo Redo Paint Tools Text Save	Overwrite Animation Play Mode Category Sound effect Voice Recording Drop down menu Instruction Algorithm Programmer Code Coding Software Code blocks Object Action Command Design View Run Code View Debug	Algorithm Object Action Command Design View Run Code View Debug Code blocks Event When Clicked Output Sound Execute Instruction Direction Left Right Undo Challenge Route Delete Command Unit	Object Action Event Execute Scene Attributes Scale Plan Background Font Clip- Art Gallery Copy Paste Features Edit	Spreadsheet Data Row Column Cell Delete Calculations Button Clip Art Image Move cell Lock cell Select Count tool Value Speak tool Technology Computer

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Year 2

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Prior EYFS Learning	**To select colours, mark make purposefully, control tools to experiment with and to erase a picture. To describe a route that is in progress and a route taken by another person while it is being enacted. To follow a route taken by another person after it has been enacted, plan routes for toy vehicles and follow plans for toy vehicles. To plan and input instructions for a floor robot building up to several steps and interpret simple instructions to predict an outcome. To be able to record spoken words and play this back and to look at photos and identify features. To know the technology used in the home, to identify how technology is used outdoors and in the wider world. To express how it feels to be uncomfortable with something and to name people who can help with negative feelings. To be able to think about how to show kindness to others and begin to be aware of the impact of a lot of screen time.**					
Topic	**Creating Pictures Questioning Coding Online Safety**	**Effective Searching Spreadsheets Presenting Ideas**	**Coding Spreadsheets Presenting Ideas Online Safety**	**Coding Online Safety**	**Presenting Ideas Making Music Creating Pictures Online Safety**	**Presenting Ideas Questioning**
National Curriculum Subject Content						
Computer Science	To understand what an algorithm is. To create a computer program using an algorithm. To create a program using a given design. To understand the collision detection event. To understand that algorithms follow a sequence.	To understand what an algorithm is. To create a computer program using an algorithm. To design an algorithm that follows a timed sequence.	To understand what an algorithm is. To create a computer program using an algorithm. To create a program using a given design. To understand that different objects have different properties.	To create a computer program using an algorithm. To understand what different events do in code. To understand the function of buttons in a program. To understand and debug simple programs.		
Information Technology	To learn about data handling tools that can give more information than pictograms. To use yes/no questions to separate information. 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 understand the terminology associated with searching. To gain a better understanding of searching on the Internet. 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 open, copy an image and save a Word document.	To use 2Calculate to collect data and produce a graph. To find and save a document. To include photos and text in a power point.		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. Children can describe the main features of Piet Mondrian's work. and can use 2Paint a Picture to create art based upon his style. To add sounds to a tune to improve it. To think about how music can be used to express feelings and create tunes which depict feelings.	To use a variety of software to manipulate and present digital content and information.. To collect, organise and present data and information in digital content. To understand what is meant by a binary tree. To understand that questions are limited to 'yes' and 'no' in a binary tree. To know that the user cannot use 2Question to find out answers to more complicated questions. To match 2Simple item pictures to names using a binary tree.
Digital Literacy	To know how to refine searches using the search tool. 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.	Recognise common uses of information technology beyond school.	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.	To have some knowledge and understanding about sharing more globally on the Internet. To introduce Email as a communication tool. 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.
Activities	**Unit 2.6: Creating Pictures** Lesson 1-Impressionism Lesson 2- Pointillism **Unit 2.4 Questioning** Lesson 1: Using and creating pictograms Lesson 2: Use yes/no questions **Unit 2.1: Coding** Lesson 1: Algorithms Lesson 2: Collision Detection **Unit 2.2-: Online Safety** Lesson 1: Searching and Sharing	**Unit 2.5 : Effective Searching** Lessons 1 and 2- Understanding the internet and searching the internet. **Unit 2.3: Spreadsheets** Lesson 1: Review the use of spreadsheets Lesson 2: Copying and Pasting Totalling tools Lesson 3: Using a Spreadsheet to add amounts (To complete over 2 lessons) **Unit 2.8 – Presenting Ideas** Use Word to copy and paste images and type sentences. **Unit 2.1: Coding** Lesson 3: Using a Timer	**Unit 2.1: Coding** Lesson 4: Different objects. **Unit 2.3 : Spreadsheets** Lesson 4: Table and block graph **Unit 2.8 – Presenting Ideas** Making a power point (To complete over 2 lessons) **Safer Internet Day Lesson**	**Unit 2.1: Coding** Lesson 5: Buttons Lesson 6: Debugging (To complete over 3 lessons) **Unit 2.2: Online Safety** Emailing	**Unit 2.8: Presenting Ideas** Lesson 3: Make a fact file about a monarch. (To complete over 2 lessons) **Unit 2.7: Making music** Lesson 1: Introducing 2Sequence. Lesson 2: Making music **Unit 2.6: Creating pictures** Lesson 3: Piet Mondrian **Unit 2.2: Online Safety** Lesson3: Digital footprint	**Unit 2.8: Presenting Ideas** Lesson 4: Use Power point to create a presentation about all the work in year 2 and show to class. (To complete over 3 lessons) **Unit 2.4 : Questioning** Lesson 3: Binary trees Lesson 4: Using a computer based binary tree program.
Vocabulary	**Art Impressionism Palette Style Pointillism Dilute Pictogram Information Data Sort Avatar Question Instruction Algorithm Event Object Action Command Scene Predict Background Attributes Scale Click events Collision Detection Image Interaction Implement Search Filter Internet Sharing Display Board**	**Algorithm Action Collision Detection Command Output Timer Interval Internet Sequence Network World Wide Web Url Device Web page Browser Website Domain Web address Search Engine Digital footprint Column Cell Toolbox Drag Cut Speak Tool Row Paste Count Tool Copy Equals Total Price Coins**	**Background Scene Attributes Debug Predict Event Object Command Action Data Table Label Block Graph Copy Paste Image**	**Background Object Attributes Action When clicked Button Object name Text Run Execute Bug Debug Test Search Filter Internet Reply Sharing Display board Email Attachment Personal/Private information**	**Art Style Line Fill Horizontal Vertical Digital footprint Protection Identifying Secure Copy Paste Image Save File Tune Compose Note Speed Beat Volume Tempo Sound effect Repeat Bars**	**Information Data Sort Binary tree Question Copy Paste Keys Image Type**

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Year 3

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	Touch Typing Coding Online Safety	Coding Presenting with Powerpoint	Spreadsheets Touch Typing	Coding Spreadsheets Branching Databases	Simulations Graphing Online Safety	Email Online Safety
National Curriculum Subject Content						
Computer Science	To understand what a flowchart is and how flowcharts are used in computer programming. To understand that there are different types of timers. To be able to select the right type of timer.	To understand how to use the repeat command. To use coding knowledge to create a range of programs To understand the importance of nesting.		To design and create an interactive scene.		
Information Technology	To sit correctly at the keyboard. To learn how to use the home, top and bottom row keys. To touch type using the left hand.	To create a page in a presentation by adding text and shapes. To add media to a presentation. To add animations into a presentation. To add timings into a presentation	To add and edit data in a table layout. To find out how spreadsheet programs can automatically create graphs from data. To introduce the 'more than', 'less than' and 'equals' tools. To introduce the 'spin' tool and show how it can be used to count through times tables. To touch type using the right hand.	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. To learn about describing cells using their addresses. To sort objects using just YES/NO questions. To complete a branching database using 2Question.	To find out what a simulation is and understand the purpose of simulations To explore simulation, making choices and discussing their effects. To enter data into a graph and answer questions. To solve an investigation and present the results in graphic form.	
Digital Literacy	To know what makes a safe password, how to keep passwords safe and the consequences of giving your passwords away. To understand how the Internet can be used to help us to communicate effectively. To understand how a blog can be used to help us communicate with a wider audience.				To consider if what can be read on websites is always true. To look at a 'spoof' website. To create a 'spoof' webpage. To think about why these sites might exist and how to check that the information is accurate.	To learn about the meaning of age restrictions symbols on digital media and devices. To discuss why PEGI restrictions exist. To know where to turn for help if they see inappropriate content or have inappropriate contact from others. To open and respond to an email. To write an email to someone from an address book. To learn how to use email safely. To add an attachment to an email.
Activities	**3.4 Touch Typing** Lesson 1: Home, top and bottom row keys. Lesson 2: Home, top and bottom row keys. (consolidation) Lesson 3: Left keys **Unit 3.1: Coding** Lesson 1: Using flowcharts Lesson 2: Using timers **3.2: Online Safety** Lesson 1: Safety in numbers	**Unit 3.1 Coding** Lesson 3: Using repeat Lesson 4: Code, test and debug. **(To complete over 3 weeks)** **Unit 3.9: (Presenting with Microsoft Powerpoint)** Lesson 1: Making a presentation from a blank page. Lesson 2: Adding media Lesson 3: Adding animation Lesson 4: Presenting with timings.	**Unit 3.3: Spreadsheets** Lesson 1: Creating pie charts and bar graphs. Lesson 2: Using more than and spin button tools. **(To complete over 3 weeks)** **3.4 Touch Typing** Lesson 4: Right key **Safer Internet Day Lesson**	**Unit 3.1 Coding** Lessons 5 and 6: Design and make an interactive scene. **(To complete over 3 weeks)** **Unit 3.3: Spreadsheets** Lesson 3: Advanced mode and cell addresses. **Unit 3.6 Branching Databases** Lesson 1: Introducing databases Lesson 2: Branching databases	**Unit 3.7: Simulations** Look at what is a simulation from lesson 1 and then complete activity from lesson 2- Exploring simulations. **Unit 3.8: Graphing** Lesson 1: Introducing 2Graph Lesson 2: Using 2Graph to solve an investigation. **3.2: Online Safety** Lesson 2: Fact or fiction?	**Unit 3.5: Email** Lesson 2: Composing emails Lesson 3: Using email safely – part 1 Lesson 4: Using email safely – part 2 Lesson 5: Attachments **3.2: Online Safety** Lesson 3: Appropriate Content and ratings.
Vocabulary	Positive Typing Keys Algorithm Object Background Event Implement Predict Run Attributes Action Scene Flowchart Timer Interval Nested Password Personal Blog Permission Info Vlogs Appropriate	Command Button Collision Detection Event Background Input Turtle Object Repeat Right angle Degrees Object Test Action Debug Timer Repeat Nesting Font Presentation Textbox Formatting Word Art Media Video Preview Editing Audio Slide Animation Transition Preview Sound effect	Pie chart Data Table Bar graph More than Spinner tool Equal Equal tool Less than Positive Typing Keys	Object Scene Attributes Sequence Predict Run Test Debug Click Event Alert Cell address Advanced mode Quiz tool Data Database Binary tree Branching database	Simulation Modelling Advantage Solution Disadvantage Point of view Realistic Unrealistic Graph Chart Title Sorting Data Row Column Investigation Survey Tally chart Internet Website Spoof Verify Reputable source	Communication Email Compose Address book Inbox Trusted contact Personal information Password Attachment Save to draft CC- Carbon copy Reputable source Internet Website Spoof Verify Inappropriate Permission

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Year 4

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	Effective Searching Coding Online Safety Making Music	Using 2Logo Hardware Investigators Coding Online Safety Making Music	Using 2Logo Coding Making Music	Animation Online Safety Making Music	Coding Spreadsheets Online Safety	Spreadsheets
National Curriculum Subject Content						
Computer Science	To review coding vocabulary and knowledge. To create a simple computer program. To begin to understand selection in computer programming. To understand how an IF statement works.	To understand how to use coordinates in computer programming. To understand the Repeat until command To begin to know selection in computer programming. To know how an IF/ELSE statement works. To learn the structure of the language of 2Logo and input simple instructions. To use 2Logo to create letter shapes. To understand and recall the different parts that make up a desktop computer.	To use the Repeat command in 2Logo to create shapes. To use and build procedures in 2Logo to create 'flowers' or 'crystals'. To understand what a variable is in programming. To use a number variable.		To read code that includes repeat until and IF/ ELSE and explain how it works. To create a program that includes and IF/ ELSE statement. To interpret a flowchart that depicts an IF/ ELSE statement. To create a playable game.	
Information Technology	To locate information on the search results page. To use search effectively to find out information. To identify and discuss the main elements of music: Pulse, rhythm, tempo, pitch, texture.	To understand and experiment with rhythm and tempo.	To create a melodic phrase.	To compose a piece of electronic music. To say what makes a good, animated film or cartoon and discuss favourite animations. To learn how animations are created by hand. To find out how 2Animate animations can be created in a similar way using technology. To learn about onion skinning in animation. To add backgrounds and sounds to animations. To use ideas from existing 'stop motion' films to recreate their own animation. To share animations and comment on each other's work using display boards and blogs in Purple Mash.	To explore how the numbers entered into cells can be set to either currency or decimal. To explore the use of the display of decimal places. To find out how to add formulae to a cell. To explore how tools can be combined to use 2Calculate to make number games. To explore the use of the timer, random number and spin button tools.	To use the line graphing tool in 2Calculate with appropriate data. To interpret a line graph to estimate values between data reading. To use the currency formatting tool in 2Calculate. To use 2Calculate to create a model of a real-life situation. To use the functions of allocating value to images in 2Calculate to make a resource to teach place value.
Digital Literacy	To understand how children can protect themselves from online identity theft. To 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 know that copying the work of others and presenting it as their own is called 'plagiarism' and the consequences of plagiarism. To identify appropriate 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.	
Activities	**Unit 4.7: Effective Searching** Lessons 1 and 2: Using a search engine. (L1) Use search effectively to answer questions. **Unit 4.1: Coding** Lesson 1: Design, code, test and debug. Lesson 2: IF Statements **(To complete lessons over 3 weeks)** **Unit 4.2: Online Safety** Lesson 1: Going Phishing **Unit 4.9: Making Music** Lesson 1: Understanding music **To complete in music lesson**	**Unit 4.5: Using 2Logo** Lesson 1: Introduction to 2Logo Lesson 2: Creating letters using 2Logo **(Reinforce further in maths lessons)** **Unit 4.8: Hardware Investigators** Lessons 1 and 2: Hardware. Parts of a computer. **Unit 4.1: Coding** Lesson 3: Co-ordinates Lesson 4: Repeat until and IF/ELSE statements **(To complete lessons over 3 weeks)** **Unit 4.2: Online Safety** Lesson 2: Beware Malware **Unit 4.9: Making Music** Lesson 2: Rhythm and tempo. **To complete in music lesson** **To complete in music lesson**	**Unit 4.5: Using 2Logo** Lesson 3: Using the 'Repeat' command in 2Logo Lesson 4: Using procedures **(To complete lessons over 3 weeks and reinforce further in maths lessons)** **Unit 4.1: Coding** Lesson 5: Number variables **(To complete this lesson over 2 weeks)** **Safer Internet Day Lesson** **Unit 4.9: Making Music** Lesson 3: Melody and pitch. **To complete in music lesson**	**Unit 4.6: Animation** Lesson 1: Animate an object. Lesson 2: 2Animate Tools- Onion Skinning - **(To complete these lessons over 3 weeks)** Lesson 3: Stop Motion Animation **(To complete this lesson over 2 weeks)** **Unit 4.2: Online Safety** Lesson 3: Plagiarism **Unit 4.9: Making Music** Lesson 4: Creating music **To complete in music lesson**	**Unit 4.1: Coding** Lesson 6: Making a Playable game. **(To complete lesson over 2 weeks)** **Unit 4.3: Spreadsheets** Lesson 1: Formula Wizard and formatting cells Lesson 2: Using the timer and spin buttons **(To complete lessons over 3 weeks)** **Unit 4.2: Online Safety** Lesson 4: Healthy Screen Time	**Unit 4.3: Spreadsheets** Lesson 3: Line Graphs Lesson 4: Using a spreadsheet for budgeting Lesson 5: Explore place value with a spreadsheet. **(To complete lessons over 4-5 weeks)**
Vocabulary	Search engine Internet Results page Run Keywords Algorithm Attributes Background Implement Design Code blocks Predict Flowchart Event Command Sequence Selection IF statement Debug Report Spam SMART rules Phishing Attachment Texture Digital footprint Rhythm Melody Pulse Tempo Pitch	Logo Run Speed Grid Logo Commands Prediction Pen up Pen down Debugging Multi line mode Peripherals Hardware Software Components Input Motherboard Output CPU RAM Hard drive Network card Graphics card Button Timer Execute Attributes Co-ordinate IF/Else statements Nesting Flowchart Cookies Inputs Virus Malware Software Ad Fly Ransomware Rhythm Tempo BPM- Beats per minute	Pen up Pen down Multi line mode Debugging Repeat Procedure Run Command Selection IF statement Variable Melody Pitch Synthesizer Harmonious	Animation Frame FPS – Frame per second Stop motion Plagiarism Citation Watermark Copyright Collaborative Rhythm Melody Pulse Pitch Tempo	Selection Variables IF/ELSE statements Co-ordinates Timer Repeat until Input Alert Prompt Formula Wizard Percentage Average Format cell Timer Decimal place Equal to tool Random number tool Spinner tool Data analysis Collaborative database	Line graph Resize Data Chart Budget Calculations Totals Place value Set image 'Is equals to' tool

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Year 5

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	Online Safety 3D Modelling Coding Spreadsheets	Word Processing Coding	Concept Mapping Word Processing Coding	Spreadsheets Coding Online Safety	Coding Online Safety Game Creator	Game Creator Spreadsheets
National Curriculum Subject Content						
Computer Science	To begin to be able to simplify code. To create a playable game.	To know what a simulation is. To program a simulation using 2Code.	To know how to use friction in code. To begin to know what a function is and how functions work in code	To know what the different variable types are and how they are used differently. To understand how to create a string.	To begin to explore text variables when coding. To know what concatenation is and how it works. To review and analyse a computer game. To design their own game including the game environment. To design the game quest to make it a playable game.	To make their game unique by selecting the appropriate options to maximise the playability. To write informative instructions for their game so that other people can play it. To evaluate their own and peers' games to help improve their design for the future.
Information Technology	To explore the different viewpoints in 2Design and Make whilst designing a building. To refine one of their designs and print their design as a 2D net and then created a 3D model. To explore the possibilities of 3D printing. To use formulae within a spreadsheet to convert measurements of length and distance. To use the count tool to answer hypotheses about common letters in use.	To know what a word processing tool is for. To add and edit images to a word document. To know how to use word wrap with images and text To change the look of text within a document. To add features to a document to enhance its look and usability.	To use tables within MS Word to present information. To understand the need for visual representation when generating and discussing complex ideas. To know the uses of a 'concept map'. To know and use the correct vocabulary when creating a concept map. To create a concept map.	To use a spreadsheet to model a real-life problem. To use formulae to calculate area and perimeter of shapes. To create formulae that use text variables.		To use a spreadsheet to model a real-life situation and come up with solutions that can be practically applied.
Digital Literacy	To gain a greater understanding of the impact that sharing digital content can have. To review sources of support when using technology. To review children' 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 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.	Ensuring reliability through using different methods of communication.	
Activities	**Unit 5.2: Online Safety** Lesson 1: Responsibilities and support when online. **Unit 5.6: 3D Modelling** Lesson 1: Introducing 2Design and Make and Lesson 4: Printing **(to combine these lessons by printing 'net' and making model)** **5.1: Coding** Lesson 1: Coding effectively **(To complete this lesson over 2 weeks)** **Unit 5.3: Spreadsheets** Lesson 1: Conversion of measurements Lesson 2: Create a vowel counter.	**Unit 5.8: Word Processing using Word** Lesson 1: Making a document from a blank page. Lesson 2: Inserting images – Considering copyright. Lesson 3: Editing Images in Word Lesson 4: Adding the text. Lesson 5: Finishing touches. **5.1: Coding** Lesson 2: Simulating Physical Systems **(To complete this lesson over 2 weeks)**	**Unit 5.7: Concept Mapping** Lessons 1 and 2: Introduction to concept mapping and Using 2Connect. **Unit 5.8: Word Processing using Word** Lesson 6: Presenting information using tables. **5.1: Coding** Lesson 4: Friction and Functions **(To complete this lesson over 2 weeks)** **Unit 5.2: Online Safety** Lesson 2: Protecting Privacy **Safer Internet Day Lesson**	**Unit 5.3: Spreadsheets** Lesson 3: Formulae Lesson 4: Using text variables to calculations **(To complete lessons over 3 weeks)** **5.1: Coding** Lesson 5: Introducing Strings **(To complete this lesson over 2 weeks)** **Unit 5.2: Online Safety** Lesson 3: Citing Sources	**5.1: Coding** Lesson 6: Text variables and concatenation **(To complete this lesson over 2 weeks)** **Unit 5.2: Online Safety** Lesson 4: Reliability **Unit 5.5: Game Creator** Lesson 1: Setting the scene Lesson 2: Creating the game environment Lesson 3: The game quest	**Unit 5.5: Game creator** Lesson 4: Finishing and sharing Lesson 5: Evaluation **Unit 5.3: Spreadsheets** Lesson 5: Event planning with spreadsheets **(To complete this lesson over 2 weeks)**
Vocabulary	Responsibility SMART Rules Net Templates 3D view Pattern Fill Variable 3D printing Event Object Action Input Selection Efficient Co-ordination Simply Computer generated variable Conversion Advanced mode Copy Paste Formula Wizard 'How many?' tool	Word processing tool Document Selecting Front screen Zoom Font Text formatting Page orientation Copy and paste Copyright Attributing Creative command Image editing Styles Cropping Transparency Text wrapping Caption Bulleted lists Textbox Numbered lists Hyperlink Drop capital Algorithm Simulation Attributes Flowchart Object Sequence Repeat Nesting Timer Physical systems	Concept Connections Concept maps Node Word art Merge cells Column Rows Distributing columns Abstraction Friction Function Encrypt Critical thinking Image Avatar Manipulate tool	Modelling Area Perimeter Format cell Formula Totalling tool Variable String Collision When key Output Tabs Random Citation Validity Reliability Plagiarism Copyright Bibliography Creative common license	String Random Debug Concatenation Variable Print to screen IF/ELSE statement Communication Evaluation Theme Scene Texture Image Screenshot Quest	Evaluation Theme Scene Texture Image Screenshot Quest Instructions Feedback Promotion Budget Profit

Girlington Primary School Computing Curriculum

Year 6

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	Online Safety Blogging Coding	Spreadsheets Networks	Coding Online Safety Spreadsheets	Coding Spreadsheets	Understanding Binary Online Safety	Text Adventures Spreadsheets
National Curriculum Subject Content						
Computer Science	To design a playable game with a timer and a score. To plan and use selection and variables To know how the launch command works.	To discover what the children know about the Internet. To find out what a LAN and WAN are. To find out how we access the internet in school. To research and find out about the age of the internet. To think about what the future might hold.	To use functions and know why they are useful, created and called. To use flowcharts to test and debug a program. To create a simulation of a room in which devices can be controlled.	To know the different options of generating user input in 2Code. To know how user input can be used in a program. To know how 2Code can be used to make a text-based adventure game.	To know how all data in a computer is saved in the computer memory in a binary format. To explain that binary uses only the integers 0 and 1. To relate 0 to an 'off' switch and 1 to and 'on' switch. To count up from 0 in binary using visual aids if needed. To relate bits to computer storage. To convert numbers to binary using the division by two method. To check their own answers using the converter tool. To make use of a variable set to 0 or 1 to control game states.	To find out what a text-based adventure game is and to explore an example made in 2Create a Story. To plan a 'Choose your own Adventure' type story. To plan for a story adventure to make the adventure using 2Create a Story. To introduce an alternative model for a text adventure which has a less sequential narrative. To use written plans to code a map-based adventure in 2Code.
Information Technology	To identify the purpose of writing a Blog and the features of a successful blog. To create a blog or blog post with a specific purpose. To know that the way in which information is presented has an impact upon the audience.	To use a spreadsheet to investigate the probability of the results of throwing many dice. To use a spreadsheet to calculate the discount and final prices in a sale. Create a formula to help work out the prices of items in the sale. To know what an excel spreadsheet looks like. To navigate and enter data into cells. To introduce some basic data formulae in Excel. To demonstrate how the use of Excel can save time and effort when performing calculations.	To use a spreadsheet to model a situation.	To use a variety of methods including flash fill, convert text to tables and splitting cells for organising and presenting their data in a spreadsheet. To know what is meant by a delimiter. To understand how to sort data.		To use formulae for percentages, averages, max and min in spreadsheets. To create a variety of graphs in Excel. To use a spreadsheet to model a real-life situation.
Digital Literacy	To identify benefits and risks of mobile devices broadcasting the location of the user or device, To identify secure sites by looking for privacy seals of approval, e.g., https, padlock icon. To identify the benefits and risks of giving personal information and device access to different software.		To review digital footprint and understand how and why people use their information and online presence to create a virtual image of themselves as a user. To have a clear idea of appropriate online behaviour and how this can protect themselves and others from possible online dangers, bullying and inappropriate behaviour. To begin to understand how information online can persist and give away details of those who share or modify it.		To know the importance of balancing game and screen time with other parts of their lives, e.g .effect this has on their health. To identify the positive and negative influences of technology on health and the environment.	
Activities	**Unit 6.2: Online Safety** Lesson 1: Message in a Game **Unit 6.4: Blogging** Lesson 1: What is a Blog? Lesson 2: Planning a blog. Lesson 3: Writing a blog (combine and teach lessons over 2 weeks) **Unit 6.1: Coding** Lessons 1 and 2: Design and make a more complex program (teach over 3 weeks)	**Unit 6.3: Spreadsheets** Lesson 1: Exploring Probability Lesson 2: Creating a computational model (TO BE COMPLETED IN MATHS LESSONS) **Unit 6.6: Networks** Lesson 1: The World Wide Web and the Internet Lesson 2: Our school network and accessing the internet. Lesson 3: Research **Unit 6.9: Spreadsheets with Excel** Lesson 1: What is a spreadsheet? Lesson 2: Basic Calculations (teach over 3 weeks)	**Unit 6.1: Coding** Lesson 3: Coding using functions Lesson 4: Flowcharts and control simulations (teach over 3 weeks) **Unit 6.2: Online Safety** Lesson 2: Online behaviour **Unit 6.9: Spreadsheets with Excel** Lesson 3: Modelling (teach over 2 weeks)	**Unit 6.1: Coding** Lesson 5: User input Lesson 6: Using text based adventures (teach over 3-4 weeks) **Unit 6.9: Spreadsheets with Excel** Lesson 4: Organising data (teach over 2 weeks)	**Unit 6.8: Understanding Binary** Lesson 1: What is Binary? Lesson 2: Counting in Binary Lesson 3: Converting from decimal to Binary Lesson 4: Game States (teach over 5 weeks) **Unit 6.2: Online Safety** Lesson 3: Screen Time	**Unit 6.5: Text Adventures** Lesson 1: What is a text adventure? Lesson 2: Making a story based adventure game Lesson 3: Intro to map based text adventures Lesson 4: Coding a map text adventure (teach over 6 weeks) **Unit 6.9: Spreadsheets with Excel** Lesson 5: Advanced formulae and big data Lesson 6: Charts and graphs Lesson 7: Using a spreadsheet to plan a cake sale (TO BE COMPLETED IN MATHS LESSONS)
Vocabulary	Secure website Spoof Location Phishing Sharing passwords PEGI rating Blog Vlog Archive Blog post Nodes Connections Collaborative Debug Algorithm Action Command Co-ordinate Decomposition Event Input Output Object Selection Launch x and y attributes	Chart tool Count tool Formula Wizard Computational mode Dice tool Format cell Percentage Internet World Wide Web Website Network Web server Web page LAN WAN WLAN ISP DNS IP address Search engine Router Hub Router Ethernet Wifi Cell Formulae Data Row Column Cell reference Categories ribbon	Command Attributes Run/Execute Object Function Text object Tabs Flowchart Simulation Procedure Digital footprint Inappropriate Computation mode Template Budget Expense Formatting Currency	Run/Execute String Variable Tabs Input Concatenation Simulation Repeat Text adventure Delimiter Sorting Flash-fill Auto fil	Binary Denary Transistor Microprocessor Bit Nanotechnology Nibble Byte Kilobyte Megabyte Gigabyte Terabyte Sequence Switch Integer Remainder Game state Screen time Data analysis Print screen	Text adventure Sprite Link Function Selection Variable Repeat Debugging QR code Horizontal axis Vertical axis Conditional formatting Maximum Minimum Sorting Filter Average Currency Format
Subsequent KS3 Learning	To design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems. To understand several key algorithms that reflect computational thinking and use logical reasoning to compare the utility of alternative algorithms for the same problem. Use 2 or more programming languages, at least one of which is textual, to solve a variety of computational problems, make appropriate use of data structures and design and develop modular programs that use procedures or functions Understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming, understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal]. To understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems. To understand how instructions are stored and executed within a computer system, to understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits. To undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users. To create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability. To understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy, recognise inappropriate content, contact and conduct, and know how to report concerns.					