



## 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.



# Girlington Primary School Computing Curriculum

Year 1

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Prior EYFS Learning</b>	<p>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.</p>					
<b>Topic</b>	Online Safety  Grouping and Sorting	Pictograms  Lego Builders  Animated Books	Animated Books  Coding	Coding	Coding  Animated Books	Maze Explorers  Technology Outside of School
<b>National Curriculum Subject Content</b>						
<b>Computer Science</b>	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.	To use the direction keys in 2Go to move forwards, backwards, left, right and diagonally. To add a unit of measurement to the direction in 2Go. To undo their last move and move their character back to the starting point. To create a simple algorithm and debug an algorithm. To change the background images.
<b>Information Technology</b>		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.	
<b>Digital Literacy</b>	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.
<b>Activities</b>	First week and throughout the term practise logging on and off the computer, using icons on the keyboard and developing keyboard skills. <b>Unit 1:1: Online Safety &amp; Exploring Purple Mash</b> Lesson 1: Safe logins Lesson 2: My work area Lesson 3: Purple Mash Topics Lesson 4: Purple Mash tools <b>Unit1:2 – Grouping and Sorting</b> Lesson 1 : Sorting <b>(Could be completed in maths lesson)</b> Lesson 2: Sorting on the computer	<b>Unit 1:3: Pictograms</b> Lesson 1: Data in pictures <b>(Could be completed in maths lesson)</b> Lesson 2: Class pictogram Lesson 3: Recording results <b>Unit 1:4 : Lego Builders</b> 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. <b>Unit 1:6: Animated Books</b> Lesson 1: Drawing and creating	<b>Unit 1:6: Animated Books</b> Lesson 2: Animation Lesson 3: Sounds and more <b>Unit 1:7 : Coding</b> Lesson 1: Instructions Lesson 2: Objects and actions. <b>(To complete coding lessons over 3 weeks)</b>  Safer Internet Day Lesson	<b>Unit 1:7 : Coding</b> Lesson 3: Events Lesson4: When codes execute. <b>(To complete coding lessons over 3 weeks)</b>  Throughout this term recap all coding learnt from last term and this term and make sure children are secure with all coding vocabulary for Year 1. Can use Espresso and complete Coding activities to reinforce learning.	<b>Unit 1:7 : Coding</b> Lesson 5: Setting the scene Lesson 6: Using a plan <b>(To complete coding lessons over 3 weeks)</b> <b>Unit 1:6: Animated Books</b> Lesson 4: Making a story Lesson 5: Copy and paste	<b>Unit 1:5 Maze Explorers</b> Lesson 1: Challenges 1 and 2 Lesson 2: Challenges 3 and 4 Lesson 3: Challenges 5 and 6  <b>Unit 1:9: Technology Outside of School</b> Lesson 1: What is technology? Lesson 2: Technology outside of school.
<b>Vocabulary</b>	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 Algoritm 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	Object Action Event Execute Scene Attributes Scale Plan Background Font Clip- Art Gallery Copy Paste Features Edit	Algorithm Challenge Command Direction Instruction Left Right Route Undo Unit Technology Computer



# Girlington Primary School Computing Curriculum

## Year 2

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Prior EYFS Learning	<p>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.</p>					
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
<b>National Curriculum Subject Content</b>						
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 navigate around a spreadsheet. To explain what rows and columns are. To enter data and images into cells. To use the apparatus images to solve maths questions. To use the 'move cell' tool so that images can be dragged around the spreadsheet. To use the clipart gallery to add images to a spreadsheet and give images a value. To open, copy an image and save a Word document.	To use tools in a spreadsheet to automatically total rows and columns. To use a spreadsheet to solve a mathematical puzzle. 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. To understand the terminology associated with searching. To gain a better understanding of searching on the Internet.	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	<b>Unit 2.6: Creating Pictures</b> Lesson 1-Impressionism Lesson 2: Pointillism <b>Unit 2.4 Questioning</b> Lesson 1: Using and creating pictograms Lesson 2: Use yes/no questions <b>Unit 2.1: Coding</b> Lesson 1: Algorithms Lesson 2: Collision Detection <b>Unit 2.2: Online Safety</b> Lesson 1: Searching and Sharing	<b>Unit 2.5 : Effective Searching</b> Lessons 1 and 2- Understanding the internet and searching the internet. <b>Unit 2.3: Spreadsheets</b> Lesson 1: Introduction to spreadsheets Lesson 2: Adding Images to a spreadsheet Lesson 3: Using clipart images in a spreadsheet <b>Unit 2.8 – Presenting Ideas</b> Use Word to copy and paste images and type sentences. <b>Unit 2.1: Coding</b> Lesson 3: Using a Timer	<b>Unit 2.1: Coding</b> Lesson 4: Different objects. <b>Unit 2.3 : Spreadsheets</b> Lesson 4: Totalling Tools <b>Unit 2.8 – Presenting Ideas</b> Making a power point (To complete over 2 lessons) <b>Safer Internet Day Lesson</b>	<b>Unit 2.1: Coding</b> Lesson 5: Buttons Lesson 6: Debugging (To complete over 3 lessons) <b>Unit 2.2: Online Safety</b> Emailing	<b>Unit 2.8: Presenting Ideas</b> Lesson 3: Make a fact file about a monarch. (To complete over 2 lessons) <b>Unit 2.7: Making music</b> Lesson 1: Introducing 2Sequence. Lesson 2: Making music <b>Unit 2.6: Creating pictures</b> Lesson 3: Piet Mondrian <b>Unit 2.2: Online Safety</b> Lesson3: Digital footprint	<b>Unit 2.8: Presenting Ideas</b> 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) <b>Unit 2.4 : Questioning</b> 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 Data Drag Equals Spreadsheet Graph Row Equals Tool Total	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



# Girlington Primary School Computing Curriculum

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 Programming Physical Devices: micro:bits	Coding Branching Databases	Simulations Programming Physical Devices: micro:bits Online Safety	Email Online Safety Graphing
<b>National Curriculum Subject Content</b>						
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 explain that the micro:bit is a tiny computer. Give the micro:bit instructions in code to make a name badge using the LED display output. To create a micro:bit animation using a sequence of images in a loop. To explain that the order or sequence of instructions is important.	To design and create an interactive scene.	Make the micro:bit show different pictures on the LED display output depending on which button input is pressed. To explain that inputs and outputs are data sent to a computer. Use the music editor to create sounds and music. Explain that accelerometer is a sensor that senses movement. To create code that makes sounds.	
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 use the correct terminology for a spreadsheet. To create a table of data on a spreadsheet. To create charts and graphs from data. To describe a cell location on a spreadsheet using a notation of a letter for the column and a number for a row. To find specified locations in a spreadsheet. 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.	To set up a graph with a given number of fields. To enter data for a graph. To produce and share graphs made on the computer. To solve a maths question using graphing. To present the results in a range of graphical formats. To use the sorting option to make analysis of their data easier.
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 'spoo' website and create a 'spoo' 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 and add an attachment.
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 <b>(To complete over 3 weeks)</b> 3.2: Online Safety Lesson 1: Safety in numbers	Unit 3.1 Coding Lesson 3: Using repeat Lesson 4: Code, test and debug. <b>(To complete over 3 weeks)</b> Unit 3.9: 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: Cell Addresses <b>(To complete over 3 weeks)</b>  Unit 3.10 Programming Physical Devices: micro:bits Lesson 1: Name Badge Lesson 2: Beating Heart  Safer Internet Day Lesson	Unit 3.1 Coding Lessons 5 and 6: Design and make an interactive scene. <b>(To complete over 3 weeks)</b>  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.  3.2: Online Safety Lesson 2: Fact or fiction?  Unit 3.10 Programming Physical Devices: micro:bits Lesson 3: Emotion Badge Lesson 4: Sounds and gestures	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. Unit 3.8: Graphing Lesson 1: Introducing 2Graph Lesson 2: Using 2Graph to solve an investigation.
Vocabulary	Spacebar 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	Spreadsheet Row Column Cell Cell Address Quiz Tool Bar Graph Pie Chart Hardware LED Repeat Software Animation Image Infinite loop Output	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 Internet Website Spoo Verify Reputable source Data Input Output Selection Accelerometer Gestures Sound output Speaker	Communication Email Compose Address book Inbox Trusted contact Personal information Password Attachment Save to draft CC- Carbon copy Reputable source Internet Website Spoo Verify Inappropriate Permission Graph Chart Title Sorting Axis Data Row Column



## Year 4

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Topic</b>	Coding Online Safety	Coding Writing for Different Audiences	Writing for Different Audiences Artificial Intelligence	Hardware Investigators Micro:Bit	Animation Micro:Bit	Effective Searching Using 2Logo
<b>National Curriculum Subject Content</b>						
<b>Computer Science</b>	<p>To review coding vocabulary and knowledge.</p> <p>To create a simple computer program.</p> <p>To begin to understand selection in computer programming.</p> <p>To understand how an IF statement works.</p> <p>To understand how to use coordinates in computer programming.</p>	<p>To understand the Repeat until command</p> <p>To begin to know selection in computer programming.</p> <p>To know how an IF/ELSE statement works.</p> <p>To read code that includes repeat until and IF/ ELSE and explain how it works.</p> <p>To create a program that includes and IF/ ELSE statement.</p> <p>To interpret a flowchart that depicts an IF/ ELSE statement.</p> <p>To understand what a variable is in programming.</p> <p>To use a number variable.</p> <p>To create a playable game</p>		<p>To understand the different parts that make up a desktop computer and their functions.</p> <p>To understand how sensor inputs from the accelerometer can be used to detect movement, such as when a step is taken.</p> <p>To understand that variables are used to keep track of the current step count.</p> <p>To apply this learning to build a practical, real-world project.</p> <p>To understand how inputs, outputs, and computer code work together to make control systems.</p> <p>To know how logic (conditional 'IF/ELSE' instructions) is used to make different outputs happen depending on changes in data from a sensor.</p> <p>To use 'repeat forever' infinite loops to keep control systems responding to changes in the environment.</p>	<p>To use the accelerometer via the 'when gesture: shake' block to start the code running.</p> <p>To make use of logical 'IF' conditional instructions.</p> <p>To apply these concepts to make a computer simulation of a real-world game.</p> <p>Use the accelerometer via the 'when gesture: shake' block to start the code running. • Make use of logical 'IF' conditional instructions. • Apply these concepts to make a computer simulation of a real-world game.</p> <p>Use the accelerometer via the 'when gesture: shake' block to start the code running. • Make use of more complex logical 'IF' conditional instructions. • Apply these concepts to make a computer simulation of a real-world tool.</p>	<p>To learn the structure of the language of 2Logo and input simple instructions.</p> <p>To use 2Logo to create letter shapes.</p> <p>To understand and recall the different parts that make up a desktop computer.</p> <p>To use and build procedures in 2Logo to create 'flowers' or 'crystals'.</p>
<b>Information Technology</b>		<p>To explore how font size and style can affect the impact of a text.</p> <p>To use the incoming information to write a newspaper report using appropriate font sizes and styles.</p>	<p>To use 2Connect to mind-map ideas for a community campaign.</p> <p>To use these ideas to write a persuasive letter or poster as part of the campaign.</p> <p>To assess their texts using criteria to judge their suitability for the intended audience.</p> <p>To understand the basic concept of artificial intelligence and identify real-life examples of artificial intelligence.</p> <p>To recognise the impact of artificial intelligence in daily life and how it can assist and benefit us in various aspects of daily life.</p> <p>To understand the potential applications and impact of AI in the future.</p> <p>To encourage critical thinking and creativity when thinking about the future of AI.</p> <p>To understand how artificial intelligence is being used to create music and art.</p> <p>To use artificial intelligence to create music and art.</p>		<p>To say what makes a good, animated film or cartoon and discuss favourite animations.</p> <p>To learn how animations are created by hand.</p> <p>To find out how 2Animate animations can be created in a similar way using technology.</p> <p>To learn about onion skinning in animation.</p> <p>To add backgrounds and sounds to animations.</p>	<p>To locate information on the search results page.</p> <p>Use Search Effectively to Answer Questions</p> <p>To assess whether an information source is true and reliable</p>
<b>Digital Literacy</b>	<p>To understand how children can protect themselves from online identity theft.</p> <p>To understand that information put online leaves a digital footprint or trail and that this can aid identity theft.</p> <p>To identify the risks and benefits of installing software including apps.</p> <p>To know that copying the work of others and presenting it as their own is called 'plagiarism' and the consequences of plagiarism.</p> <p>To identify appropriate behaviour when participating or contributing to collaborative online projects for learning.</p> <p>To identify the positive and negative influences of technology on health and the environment.</p> <p>To understand the importance of balancing game and screen time with other parts of their lives.</p>					



# Girlington Primary School Computing Curriculum

Activities	<p><b>Unit 4.1: Coding</b> Lesson 1: Design, code, test and debug. Lesson 2: IF Statements Lesson 3: Co-ordinates</p> <p><b>Unit 4.2: Online Safety</b> Lesson 1: Going Phishing Lesson 2: Beware Malware Lesson 3: Plagiarism Lesson 4: Healthy Screen Time</p>	<p><b>Unit 4.1: Coding</b> Lesson 4: Repeat until and IF/ELSE statements Lesson 5: Number variables Lesson 6: Making a Playable game. <b>(To complete over 5 weeks)</b></p> <p><b>Unit 4.4 - Writing for Different Audiences</b> Lesson 1: Fonts Lessons 2 and 3 : Using a Simulated Scenario to Produce a News Report.</p>	<p><b>Unit 4.4 - Writing for Different Audiences</b> Lessons 4 and 5: Writing for a campaign.</p> <p><b>Unit 4.10: Artificial Intelligence</b> Lesson 1: What is Artificial Intelligence? Lesson 2: How Artificial Intelligence can help us Lesson 3: The future of Artificial Intelligence Lesson 4: Artificial Intelligence in action</p> <p><b>Safer Internet Day Lesson</b></p>	<p><b>Unit 4.8: Hardware Investigators</b> Lessons 1 and 2: Hardware. Parts of a computer.</p> <p><b>Unit 4.11 Programming Physical Devices: micro:bits</b> Lesson 1: Step counter Lesson 2: Night light</p> <p><b>Recap on Coding from Autumn term</b></p>	<p><b>Unit 4.6: Animation</b> Lesson 1: Animate an object. Lesson 2: 2Animate - Tools- Onion Skinning - <b>(To complete over 3 weeks)</b></p> <p><b>Unit 4.11 Programming Physical Devices: micro:bits</b> Lesson 3: Rock, paper, scissors Lesson 4: Making a dice</p>	<p><b>Unit 4.7: Effective Searching</b> Lesson 1 Using a search engine. Lesson 2: Use search effectively to answer questions. Lesson 3: Reliable Information Sources <b>(Try to combine into 2 lessons)</b></p> <p><b>Unit 4.5: Using 2Logo</b> Lesson 1: Introduction to 2Logo Lesson 2: Creating letters using 2Logo Lesson 3: Using the 'Repeat' command in 2Logo Lesson 4: Using procedures <b>(Reinforce further in maths)</b></p>
Vocabulary	<p>Algorithm Code blocks Background Object Predict Run Event Debug Action Design Flowchart Command Sequence Selection IF statement Co-ordinates Attributes Button Execute Timer Nesting AdFly Attachment Citation Collaborative database Cookies Copyright Watermark Data analysis Digital footprint Malware Phishing Plagiarism Ransomware Report Software SMART Rules Spam Virus</p>	<p>Repeat until 'If/Else' statement Inputs Variable Alert Prompt Genre Format Font</p>	<p>Campaign Opinion Reporter Viewpoint Artificial Intelligence Algorithm Data</p>	<p>Components CPU Input Graphics Card Hard Drive Hardware Motherboard Network Card Output Peripherals RAM Software Accelerometer Data Sensor Variable LED Infinite loop Logic Light Sensor</p>	<p>Animation FPS – Frames Per Second Frame Onion Skinning Gestures: Selection Simulation Logic</p>	<p>Balanced View Easter eggs Internet Reliability Results Page Search engine Debugging Grid Logo Logo Commands Multi Line Mode Pen down Pen up Prediction Run speed</p>



# Girlington Primary School Computing Curriculum

## 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 Online Safety	Spreadsheets Coding Online Safety	Coding Online Safety Game Creator	Micro:Bit
<b>National Curriculum Subject Content</b>						
Computer Science	To begin 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.	Use the accelerometer via the 'when gesture: shake' event to start the code running. To make use of logical 'IF/THEN' conditional instructions and apply these concepts to tell a story. Use input from the micro:bit sensor to display temperature on the LED display. To understand how IF/THEN statements introduce selection in a program to make things happen based on conditions and apply these concepts to make a computer simulation of a real-world system. Use input from the accelerometer sensor as the event to start the code running. To understand that variables are used to choose from a set of Magic 8 Ball answers. To make use of more complex logical 'IF' conditional instructions and apply these concepts to make a computer simulation. To use input from the micro:bit pins to display a goal score on the LED display. To understand that variables are used to keep track of goals scored and apply these concepts to make a computer simulation of football match.
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 create a formula in a spreadsheet to convert metric measurements of length and distance and apply this to creating a spreadsheet that converts between metric and imperial measures To use a spreadsheet to model a real-life problem. To use formulae to calculate area and perimeter of shapes.	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 create a spreadsheet to answer a mathematical question relating to probability. To problem solve using the count tool. To use spreadsheets to model real-life situations and produce 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's responsibility to one another in their online behaviour.		To know how to maintain secure passwords. To understand the advantages, disadvantages, permissions, and purposes of altering an image digitally and the reasons for this. To be aware of appropriate and inappropriate text, photographs and videos and the 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 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: Using Formulae	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 3: 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: Exploring Probability Lesson 4: Computational Modelling (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 5.10 Programming Physical Devices: micro:bits Lesson 1: Tell me a story Lesson 2: Measuring Equipment Lesson 3: Magic 8 Ball Lesson 4: Goal!  (To complete lessons over 6 weeks)



# Girlington Primary School Computing Curriculum

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	Accelerometer Input LED Output Sensor Simulation Gestures IF/THEN Variable Logic Ambient Temperature Data Thermometer Thermostat Selection Crocodile clip Electrical circuit Pins





# 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	Understanding Binary Online Safety	Text Adventures Spreadsheets
<b>National Curriculum Subject Content</b>						
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 an '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 2Code. To plan a 'Choose your own Adventure' type story. To plan for a story adventure to make the adventure using 2Code 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 6.6: 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 Lesson 3: Modelling (teach over 4 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 4: Organising data (teach over 2 weeks)	Unit 6.1: Coding Lesson 5: User input Lesson 6: Using text based adventures (teach over 3-4 weeks)	Unit 6.8: 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: Coding Comprehension of text adventure game. Lesson 4: Debugging and improving a 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	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 Repeat Simulation Repeat Text adventure Delimiter Sorting Flash-fill Auto fill	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	<p>To design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems.</p> <p>To understand several key algorithms that reflect computational thinking and use logical reasoning to compare the utility of alternative algorithms for the same problem.</p> <p>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</p> <p>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].</p> <p>To understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems.</p> <p>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.</p> <p>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.</p> <p>To create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability.</p> <p>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.</p>					