



## **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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| <b>Prior EYFS Learning</b>                 | <p>To look at photos, identify features and to take photos using a device.</p> <p>To take appropriate actions before using technology and understand why food should be kept away from devices.</p> <p>To identify the main parts of a computer.</p> <p>To select colours, mark make purposefully and control tools to experiment with.</p> <p>To erase parts of pictures, draw using a touch screen and to draw using mouse control or a whiteboard pen.</p> <p>To record spoken words and play this back.</p> <p>To describe a route, plan routes for toy vehicles and follow plans for toy vehicles.</p> <p>To use the buttons on a floor robot to make it move and interpret simple instructions to predict an outcome.</p> <p>To know the technology used in the home, to know how technology is used outdoors and in the wider world.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Topic</b>                               | <p>Introduction to Purple Mash</p> <p>Creative Computing</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Data Explorers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>Creating and Following Instructions</p> <p>Animated Stories</p>                                                                                                                                                                                                                                                                                                                                                                                                | Animated Stories                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>Coding (repeat lessons in Summer 2 if found challenging)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>Technology Around Us</p> <p>Making Beats (only do if Coding isn't repeated)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Assessment</b>                          | <p>Children can login to Purple Mash with guidance and using a printed login card.</p> <p>Children can create their avatar with support. Children can open and save 2Dos but may need support with handing in 2Dos.</p> <p>With support children can open and work on a Paint Project using simple paint tools.</p> <p>Children can find work in their work area given simple steps to follow.</p> <p>Children's digital art shows that they can choose the right tools to add the details and achieve the effects that they want. Their developing fine motor skills when using a mouse are evidenced by the details of their designs. They use the instruction screens to add appropriate detail when sharing games with others.</p>                                                                                                          | <p>Using Purple Mash, children can group items into clearly defined groups using given criteria as well as sort items using digital tools.</p> <p>Children understand how the class task to make a physical pictogram builds into an overall picture of the data from the class. They can then relate this to the pictograms made using the 2Count tool. Children can answer given questions about the data.</p> <p>Children can represent simple collected data in their own pictograms. They demonstrate an understanding of what the data shows by answering questions and making correct observations.</p> | <p>Children can follow and give clear, ordered instructions both practically and on a computer. They understand that an algorithm is a set of instructions in order, and that a program is an algorithm used by a computer. They demonstrate this by completing tasks such as painting by numbers or building models correctly. They can explain what might happen if steps are out of order and begin to identify and fix simple errors (bugs) in sequences.</p> | <p>Children can independently create a digital book using 2Create a Story, including drawing characters, selecting appropriate backgrounds, and animating images. They confidently use copy and paste tools to organise pages and reuse content. They type short pieces of text to match their story and add sound effects and narration. They understand how to adjust font style and size. Children reflect on their work and can describe improvements made. They demonstrate secure knowledge of digital book features and complete their story with all key elements.</p> | <p>Children can give and follow verbal and block-based instructions to achieve simple outcomes. They transfer off-screen coding skills to on-screen block coding in 2Code, considering program design to control the look and behaviour of objects. They have an understanding of the need for clear, purposeful, and ordered instructions. They think logically about how objects, actions and outcomes relate (e.g. clicking an object triggers a response) and use 2Code's design mode to add and modify elements. Children can break problems into parts, combine code effectively, and attempt to fix issues by debugging logically rather than blaming the computer. They read code line by line and are developing the ability to visualise the overall program effect.</p> | <p>Children can confidently identify different types of technology at school, at home, and in the wider world. They can explain that technology is designed to solve problems and that electronic devices need electricity to work. They can sort examples into types, including identifying digital technology as tools that use computing power to run. Children can name key hardware parts of a computer and describe safe use of technology, including hygiene and electrical safety. They complete their tasks, describing the purpose of the technologies they include in their work.</p> <p>Children can create a digital composition using both 2Explore and 2Beat. They can combine beats and melodies, adjust tempo and volume, and choose appropriate instruments for different effects. They can explain how their music matches the mood or scene in an image. Children can open and save their work independently. They use musical terms like beat, tempo, and compose with understanding.</p> |
| <b>National Curriculum Subject Content</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Computer Science</b>                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <p>To understand that an algorithm is a set of instructions.</p> <p>To follow and create simple instructions on a device.</p> <p>To sequence algorithms that require a correct order.</p>                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <p>To understand that computer programs work by following instructions called code.</p> <p>To use object and action code blocks to make a computer program.</p> <p>To understand what an event is in coding.</p> <p>To understand the purpose of an output and to be able to 'read' code to find out what it does.</p> <p>To change aspects of the design view.</p> <p>To plan and make a computer program.</p>                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Information Technology</b>              | <p>To login and create own avatar on Purple Mash.</p> <p>To open an activity and then save the work to the 'My Work' area.</p> <p>To understand how to complete work in the 2Dos area in Purple Mash.</p> <p>To use paint tools to draw a picture.</p> <p>To create a jigsaw using a digital device and share it so that others can play.</p> <p>To create a placing game in 2DIY.</p> <p>To create images and use these to make a game.</p>                                                                                                                                                                                                                                                                                                                                                                                                    | <p>To think carefully about the steps of grouping items.</p> <p>To group items using a computer.</p> <p>To sort different items.</p> <p>To understand that data is information that can be collected and used.</p> <p>To understand that data can be shown using pictures.</p> <p>To collect data and create a pictogram.</p>                                                                                                                                                                                                                                                                                  | <p>To understand some differences between traditional books and digital books.</p> <p>To draw a character for a 2Create a Story digital book.</p>                                                                                                                                                                                                                                                                                                                 | <p>To understand the difference between backgrounds and other objects on the screen in 2Create a Story.</p> <p>To add animation to objects in 2Create a Story.</p> <p>To add text to a 2Create a Story file.</p> <p>To add sounds to a 2Create a Story file.</p>                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>To compare music made using computers and music played by real instruments.</p> <p>To explore mixing the sounds of different instruments using the 2Beat tool.</p> <p>To compose a tune to match a picture of a scene.</p> <p>To compose a beat to match a picture of a scene.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Digital Literacy</b>                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>To know what the word technology means.</p> <p>To know what technology is used in school.</p> <p>To consider the purposes of technology used in the wider world.</p> <p>To understand the safe use of technology devices.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Activities</b>                          | <p>First week and throughout the term practise logging on and off the computer, using icons on the keyboard and developing keyboard skills.</p> <p><u>Unit: Introduction to Purple Mash</u></p> <p>L1: Logging in</p> <p>L2: Your Work in Purple Mash</p> <p>L3: 2Dos in Purple Mash</p> <p>Unit: Creative Computing</p> <p>L1: Making Pictures</p> <p>L2: Making and sharing Jigsaws</p> <p>L3: Making a Game</p> <p>L4: Making Art for a Game</p>                                                                                                                                                                                                                                                                                                                                                                                             | <p><u>Unit: Data Explorers</u></p> <p>L1: Grouping Objects</p> <p>L2: Grouping Using a Computer</p> <p>L3: Sorting</p> <p>L4: What is Data?</p> <p>L5: Data in Pictures</p> <p>L6: Collecting and Analysing Data</p>                                                                                                                                                                                                                                                                                                                                                                                           | <p><u>Unit: Creating and Following Instructions</u></p> <p>L1: Following Instructions</p> <p>L2: Instructions Using a Computer</p> <p>L3: Following a Recipe</p> <p><u>Unit: Animated Stories</u></p> <p>L1: Comparing Books</p> <p>L2: Creating a Character</p>                                                                                                                                                                                                  | <p><u>Unit: Animated Stories cont....</u></p> <p>L3: Setting the Scene</p> <p>L4: Animation</p> <p>L5: Adding Text</p> <p>L6: Adding Sounds</p>                                                                                                                                                                                                                                                                                                                                                                                                                                | <p><u>Unit: Coding</u></p> <p>L1: Instructions</p> <p>L2: Objects and Actions</p> <p>L3: Events</p> <p>L4: Outputs and Reading Code</p> <p>L5: Setting the Scene</p> <p>L6: Writing Code</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <p><u>Unit: Technology Around Us</u></p> <p>L1: What is Technology and Technology in School (Combine power points)</p> <p>L2: Technology in the World</p> <p>L3: Using Devices Safely</p> <p><u>Unit: Making Beats</u></p> <p>L1: Digital Music</p> <p>L2: Combining instruments</p> <p>L3: Composing a tune for a purpose.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |



# Girlington Primary School Computing Curriculum

|            |                      |             |           |           |           |      |                |              |                |            |             |                |         |            |                    |
|------------|----------------------|-------------|-----------|-----------|-----------|------|----------------|--------------|----------------|------------|-------------|----------------|---------|------------|--------------------|
| Vocabulary | Login                | Password    | Home page | Algorithm | Criteria  | Data | Algorithm      | Computer Bug | Animation      | Background | Action      | Algorithm      | Code    | Device     | Digital Technology |
|            | 2Do                  | Avatar      | Save      | Group     | Pictogram | Sort | Debugging      | Instructions | Copy and Paste | Font       | Attribute   | Program        | Scale   | Electronic | Hardware           |
|            | Icon                 | Log out     | File name |           |           |      | Program        |              | Digital Book   | Eraser     | Code Blocks | Event          | Object  | Technology |                    |
|            | Arrow keys           | Digital art |           |           |           |      | Animation      | Background   | Sound Effect   | Text       | Code View   | Coding         | Command | Beat       | Compose            |
|            | Drag and drop        | Hot spot    |           |           |           |      | Copy and Paste | Font         |                |            | Debugging   | Design View    |         | Digital    | Musical Instrument |
|            | Touchscreen gestures |             |           |           |           |      | Digital Book   | Eraser       |                |            | Instruction | Output         | When    | Tempo      | Tune               |
|            |                      |             |           |           |           |      | Sound Effect   | Text         | Undo           |            | Clicked     | Program Design |         |            |                    |



# Girlington Primary School Computing Curriculum

## Year 2

| Term                                | Autumn 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Autumn 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Spring 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Spring 2                                                                                                                                                                                                                       | Summer 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Summer 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| Prior EYFS Learning                 | <p>To select colours, mark make purposefully, control tools to experiment with and to erase a picture.</p> <p>To describe a route that is in progress and a route taken by another person while it is being enacted.</p> <p>To follow a route taken by another person after it has been enacted, plan routes for toy vehicles and follow plans for toy vehicles.</p> <p>To plan and input instructions for a floor robot building up to several steps and interpret simple instructions to predict an outcome.</p> <p>To be able to record spoken words and play this back and to look at photos and identify features.</p> <p>To know the technology used in the home, to identify how technology is used outdoors and in the wider world.</p> <p>To express how it feels to be uncomfortable with something and to name people who can help with negative feelings.</p> <p>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<br>Questioning<br>Coding<br>Online Safety                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | The Internet<br>Spreadsheets<br>Coding<br>Presenting Ideas                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Coding<br>Spreadsheets<br>Presenting Ideas                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Coding                                                                                                                                                                                                                         | Route Explorers<br>Presenting Ideas                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Spreadsheets<br>Presenting Ideas<br>Questioning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Assessment                          | <p>Children understand that digital tools can be used to create art and can explain the benefits of using such technology. They apply knowledge of artistic movements like pointillism to recreate these styles digitally, demonstrating an understanding of colour, symmetry, pattern and line. Throughout the unit, children develop proficiency with the tools in 2Paint A Picture, using features such as fill, outline, brush scale, pattern arrangement and size, water beaker, and resizing appropriately. They understand the import function, can retrieve saved files, and incorporate and resize imported images in digital portfolios.</p> <p>Children use 2Sequence independently to create and refine a tune using a range of sounds and instruments. They adjust tempo (BPM) and volume to suit the piece, add sound effects (SFX), and explain how music can represent different feelings or moods.</p> <p>Children know that an algorithm is related to giving instructions. They can relate an algorithm to the outcome of code in Free code Chimp. Children can explain the different types of objects and include them in their programs. They are able to change their attributes and observe the effect of doing so.</p> | <p>Children can identify a range of devices that connect to the internet and explain that the internet is used to access websites and find information. They can clearly describe the difference between a website and a webpage, know the role of a browser and a search engine, and can carry out simple keyword searches to find specific information. They understand the importance of staying safe while searching online.</p> <p>Children will be able to create and organise a spreadsheet independently, adjusting the layout by using row &amp; column sizing, wrap text, and colours to make information clear.</p> <p>Children can create a clear concept map with a title, grouped ideas and correctly connected nodes.</p> <p>Children use timer after commands in a program, setting the duration of the timers and placing code within them.</p> | <p>Children will be able to create and organise a spreadsheet independently, adjusting the layout by using row &amp; column sizing, wrap text, and colours to make information clear. They will use tools to perform basic calculations (add, subtract, multiply, divide) with numbers and images, and can create a simple block diagram to present data.</p> <p>Children use timer after commands in a program, setting the duration of the timers and placing code within them. Through trial and error, they are able to correctly indent timers to run consecutively as intended.</p> <p>Children are able to create a power point about 'Whitby' by typing information and copying and pasting images from Google into their power point. They can resize the images.</p> | <p>Children use button objects in a program, using a click event to run code when buttons are clicked. Children are able to look at a design plan and use this to test code, find bugs and fix it.</p>                         | <p>Children can plan turtle moves several steps at a time towards the goal rather than one step at a time. They use strategies such as drawing the route with their finger, counting squares with a grid to break down a problem to create a solution. They use a combination of trial and error, testing and logical reasoning to tackle tasks in 2Go. They know that any unexpected outcome is due to the code that they have created and make logical attempts to try to fix this code rather than attributing it to a fault with the computer understanding the instructions. When looking at a program they can 'read' the code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program.</p> <p>Children are able to create a power point about 'Monarchs' by typing information and copying and pasting images from Google into their power point. They can resize the images, change the font and size.</p> | <p>Children will be able to create and organise a spreadsheet independently, adjusting the layout by using row &amp; column sizing, wrap text, and colours to make information clear. They will use tools to perform basic calculations (add, subtract, multiply, divide) with numbers and images, and can create a simple block diagram to present data.</p> <p>They can ask clear yes/no questions to help sort items and follow a branching database to identify an object. They understand that data helps to answer questions and make decisions.</p> <p>Children are able to create a power point about their time in Year 2 by typing information and copying and pasting images from Google into their power point. They can resize the images, change the font, size and the design format.</p> |
| National Curriculum Subject Content |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Computer Science                    | To create a computer program using an algorithm.<br>To understand ways that the collision detection event can be used in a program.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | To design a program that follows a timed sequence.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | To recognise different object types in 2Code and change the attributes of objects.<br>To create a computer program that includes different object types.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | To create a computer program that uses buttons.<br>To use a button in a click event.<br>To explain what debugging means.<br>To use a program design document for guidance when testing a program.<br>To debug simple programs. | To use the direction keys in 2Go to move the turtle along a route.<br>To use units of distance along with the direction keys in 2Go to move along a route.<br>To write instructions to complete more than one step of a route at once.<br>To build up instructions for a longer route.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Information Technology              | To create a digital art piece in a Pointillism style.<br>To create a digital art piece that is in the style of Piet Mondrian's work.<br>To create digital art patterns in the style of the Arts and Crafts movement.<br><br>To explore, edit and combine sounds using 2Sequence.<br>To improve a tune and make music based around a feeling.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | To understand how the internet, the World Wide Web and a browser work together.<br>To understand the different types of hardware used to access the internet and their functions.<br>To understand the difference between a website and a webpage and use a school website to find information.<br>To understand the difference between a browser and a search engine, and to practise searching for information safely.<br><br>To understand what a spreadsheet is and how to navigate one using 2Calculate.<br>To edit and improve a spreadsheet so that information is organised clearly and displayed correctly.<br><br>To understand that ideas can be organised and presented using a concept map.                                                                                                                                                         | To explore how spreadsheets can complete calculations automatically.<br>To explore the range of tools available in 2Calculate and understand how they can change the way data is used.<br><br>To find and save a document. To include photos and text in a power point.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                | To find and save a document.<br>To include photos and text in a power point.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | To create and interpret block diagrams from data.<br>To use learning about spreadsheets to help complete a project.<br><br>To begin to explore how yes or no questions can be used to sort data.<br>To understand how branching databases work and practise navigating them to find answers.<br><br>To find and save a document.<br>To include photos and text in a power point.                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Digital Literacy                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Activities                          | <b>Unit: Creating Pictures</b><br>L2: Dotty by Art<br>L3: Lines and Colours<br>L4: Perfect Patterns<br><b>Unit Making Music</b><br>L1: Introduce 2Sequence<br>L2: Making Music<br><b>Unit 2.1: Coding</b><br>L1: Algorithms<br>L2: Collision Detection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Unit: The Internet</b><br>L1 and L2 combined: The Internet. Devices and connecting to the internet<br>L3 and L4 combined: Websites and Webpages. Browsers and Search Engines<br><b>Unit 2.3: Spreadsheets</b><br>L1: What is a spreadsheet?<br>L2: Organising Data<br><b>Unit: Presenting Ideas</b><br>L1: What is a concept map?<br><b>Unit 2.1: Coding</b><br>L3: Using a Timer                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Unit: Coding</b><br>Lesson 4: Different types of objects.<br><b>Unit 2.3 : Spreadsheets</b><br>L3: Making Simple Calculations<br>L4: Exploring 2Calculate Tools<br><b>Unit: Presenting Ideas</b><br><b>Independent lesson: Use Word to copy and paste images and type sentences.</b><br>Making a power point about Whitby<br><b>(To complete over 2 lessons)</b>                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Unit: Coding</b><br>L5: Buttons<br>L6: Debugging<br><b>(To complete over 3 lessons)</b>                                                                                                                                     | <b>Unit: Route Explorers</b><br>L1: Directions<br>L2: Directions with distances<br>L3: Building and algorithm<br>L4: Planning a longer algorithm<br><b>Unit: Presenting Ideas</b><br>Make a power point about monarchs<br><b>(To complete over 2 lessons)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Unit: Spreadsheets</b><br>L5: Creating Block Diagrams<br>L6: Spreadsheet Challenge<br><b>Unit:: Questioning</b><br>L3: Yes or No questions<br>L4: Exploring Branching Databases<br><b>Unit: Presenting Ideas</b><br>Use Power point to create a presentation about all the work in year 2 and show to class.<br><b>(To complete over 2 lessons)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                   |



# Girlington Primary School Computing Curriculum

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| Vocabulary | Art Palette Style Pointillism<br>Dilute Pictogram Information<br>Data Sort Avatar Question<br>Instruction Algorithm Event<br>Object Action Command Scene<br>Predict Tune Compose Note<br>Speed Beat Volume Tempo<br>Sound effect Repeat Bars Scale<br>Background Attributes Sharing<br>Click events Implement Interaction<br>Collision Detection Image Search<br>Filter Internet Display Board | Algorithm Action Collision Detection<br>Command Output Timer Interval<br>Internet Sequence Network<br>World Wide Web Url Device Web<br>page<br>Browser Website Domain Web<br>address<br>Search Engine Digital footprint<br>Column Cell Data Drag Equals<br>Spreadsheet Graph Row Equals Tool<br>Total Connecting line<br>Concept map Title Node | Background Scene<br>Attributes Debug<br>Predict Event Object<br>Command Action<br>Data Table Label<br>Block Graph Copy<br>Paste Image<br>Column Cell Row Format Edit<br>Delete Automatically Apparatus<br>Value | Background Object<br>Attributes Action<br>When clicked Button<br>Object name Text Run<br>Execute Bug<br>Debug Test | Direction Command<br>Route Algorithm Coding<br>Instructions Debugging<br>Computer bug<br>Secure Copy Paste<br>Image Save File | Cell Row Column<br>Controls toolbar Axis<br>Block diagram Data Title<br>Labels Format Value<br>Information Data Sort<br>Binary tree Grouping<br>Sorting Yes/No question<br>Branching databases<br>Open/closed Question<br>Copy Paste Keys<br>Image Type Design<br>Font Size |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



| Term       | Autumn 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Autumn 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Spring 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Spring 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Summer 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Summer 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| Topic      | Email<br>Presentation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Coding                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Route Planners                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Micro:bits                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Spreadsheets                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Branching<br>Databases                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Assessment | <p>Children understand how to exchange emails using 2Email, including with peers and teachers. They can open, reply to, and compose emails, manage attachments, and use an address book. They demonstrate awareness of email safety—creating rules, protecting personal information, understanding permissions for sharing images, and recognising the importance of strong passwords. Children can manage their inbox, identify spam, and know when to reply or seek help from a trusted adult.</p> <p>Children understand what presentation software is used for. They recognise what makes a presentation effective, including suitable layout, colour, and readable text. Children can insert slides into a presentation, select appropriate layouts, and add a range of content such as text, pictures, and shapes. They can format these elements to improve the look and clarity of their work. They use transitions between slides and animations on objects appropriately, enhancing their presentation without overusing effects. Children understand how notes can support them during delivery and use them to help present confidently. They can create a complete presentation that demonstrates these skills and present it to an audience with understanding and confidence.</p> | <p>Children can design and code simple sequential programs, using timers effectively to create delay effects and understanding the difference between "timer-after" and "timer-every" commands. Their designs reflect logical thinking with clear steps and event-driven actions. Most can explain their command choices and use the repeat function to draw shapes like squares. They show a growing understanding of code structure, which aids in debugging. Additionally, they integrate multimedia elements such as sound, animation, and images. They apply actions to multimedia elements to animate them. Children can also reflect on their progress and how prior learning has supported their development.</p> | <p>Children can combine commands for directions and distance to make a character move along a chosen route. They can plan algorithms for several steps of a route and code this in 2Go. They use logical reasoning alongside trial-and-error methods to break down a task into smaller steps and work out the angle rotation required to create the solution. They know that any unexpected outcome is due to the code that they have created and make logical attempts to try to fix this code. When looking at a program they can 'read' the code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program.</p> | <p>Children can explain that computers, including the micro:bit, need to be given instructions (algorithms) by uploading code to them. Children can independently program the micro:bit to show text, images and animations. They can transfer their program to a micro:bit and run it. They can explain that repeat commands keep animations running without the need to add extra code to show the same thing repeatedly. Children can program different inputs using buttons. They can explain that inputs are information sent into a computer and that outputs are information sent from a computer and give examples. Children can create a program with music and sounds output that reacts to movement using the 'when gesture: shake' block. They can use the built-in tunes and create their own music using an inbuilt editor in the coding environment.</p> | <p>Children can confidently create and organise spreadsheets with appropriate headings and formatting. They can use the arrows and total tools to calculate sums efficiently across rows and columns. They can use both the simple and advanced modes of the formula wizard to apply functions such as SUM, AVERAGE, MIN, and MAX. Children can apply these skills to solve real-life problems and can explain how their spreadsheet helps to find answers clearly and efficiently.</p> | <p>Children understand what a branching database is and how it works. They can use yes or no questions to sort a group of objects and are able to explain why binary choice questions are effective. When creating a branching database, they can independently plan a topic, select or add records, and use suitable questions that split items into logical groups. They are able to check their own work using play mode and can identify and correct simple errors in sorting or structure. Children use key vocabulary such as data, record, and binary choice accurately and show a secure understanding of how databases help us find and organise information quickly and clearly.</p> |

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| Computer Science                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>To understand what a flowchart is and how flowcharts are used in computer programming.</p> <p>To understand that there are different types of timers.</p> <p>To understand how to use the repeat command.</p> <p>To understand the importance of nesting when coding, testing and debugging.</p> <p>To design a program.</p> <p>To use design documentation to code a program.</p> | <p>To create simple commands in 2Go to move the turtle along a route.</p> <p>To create commands in 2Go in which the turtle turns using rotation.</p> <p>To plan algorithms and write 2Go code that uses angles of turn.</p> <p>To use 90° and 45° angles in 2Go.</p> <p>To use the repeat algorithm and coding in 2Go.</p> | <p>I know that the accelerometer is an input on the micro:bit that detects movement.</p> <p>I can use different movement gestures in my code.</p> <p>I can use the music editor to create sounds and music.</p> <p>I can make sounds and music output when a movement is detected on the micro:bit.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                       |
| Information Technology                                                | <p>To learn how to open PowerPoint, add text and change how it looks.</p> <p>To learn how to add slides, change slide designs and insert pictures into a presentation.</p> <p>To add animations to pictures and text, and transitions between slides.</p> <p>To create an effective presentation.</p> <p>To complete and present a slideshow to an audience.</p>                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                         | <p>To understand the layout and features of 2Calculate in Advanced Mode.</p> <p>To use the arrows toolbar to be able to automatically total rows and columns.</p> <p>To use simple formulae in a spreadsheet by using the formula wizard.</p> <p>To use advanced formulae in a spreadsheet to calculate totals, averages and to find the highest and lowest values.</p> <p>To apply spreadsheet skills to solve real-world problems.</p> <p>To design and use a spreadsheet to answer a series of questions.</p> | <p>To understand the concept of using 'Yes' or 'No' questions to sort objects.</p> <p>To understand and use a branching database effectively.</p> <p>To plan and create a branching database.</p> <p>To test and debug branching databases to correct errors.</p>                                                                                                                                     |
| Digital Literacy                                                      | <p>To understand and respond to an email.</p> <p>To compose and send an email.</p> <p>To send an email attachment.</p> <p>To learn how to use email safely.</p> <p>To explore simulated email scenarios.</p>                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                       |
| Activities                                                            | <p><b>Unit: Email</b><br/> <b>Combine L2 and L3:</b> Replying to an email and Composing an email.<br/> <b>L4:</b> Attachments<br/> <b>Combine L5 and L6</b><br/>           Email safety and Email simulations.<br/> <b>Unit: Presentations (Microsoft Powerpoint – Desktop)</b><br/> <b>Combine L1 and L2:</b><br/>           Introduction to PowerPoint and Using Design Templates and Adding Media.<br/> <b>L3:</b> Adding Animations and Transitions<br/> <b>L4:</b> Creating a Presentation<br/> <b>L5:</b> To complete and present a slideshow to an audience.</p> | <p><b>Unit: Coding</b><br/> <b>L1:</b> Using Flowcharts<br/> <b>L2:</b> Timers<br/> <b>L3:</b> Repeats<br/> <b>L4:</b> Nesting<br/> <b>L5:</b> Design a Program<br/> <b>L6:</b> Coding a Program</p> <p><b>Lessons 5 and 6 can be done over 3 weeks</b></p>                                                                                                                           | <p><b>Unit: Route Planners</b><br/> <b>L1:</b> Exploring Routes<br/> <b>L2:</b> Turning by Angles<br/> <b>L3:</b> Planning Routes<br/> <b>L4:</b> Mapping a Route<br/> <b>L5:</b> Using Repeats</p> <p><b>Lessons 4 and 5 can be done over 3 weeks</b></p>                                                                 | <p><b>Unit: Micro:bits</b><br/> <b>L1:</b> Name Badge<br/> <b>L2:</b> Beating Heart<br/> <b>L3:</b> Emotion Badge<br/> <b>L4:</b> Sounds and Gestures</p>                                                                                                                                               | <p><b>Unit: Spreadsheets</b><br/> <b>L1:</b> Exploring Advanced Mode<br/> <b>L2:</b> Arrows Toolbar (Totalling Tools)<br/> <b>L3:</b> Using Formulae (Simple Wizard)<br/> <b>L4:</b> Using Formulae (Advanced Wizard)<br/> <b>L5:</b> Solving Real-Life Problems With Spreadsheets</p> <p><b>(Lesson can be done over 2 weeks)</b></p>                                                                                                                                                                           | <p><b>Unit: Branching Databases</b><br/> <b>L2:</b> Understanding Branching Databases<br/> <b>L3:</b> Creating a Branching Database<br/> <b>L4:</b> Debugging a Branching Database<br/>           (Lessons 3 and 4 could be done over 3 weeks)</p> <p><b>Consolidate: Repeat Coding lessons that children were finding challenging and any other lessons from other units in this final term.</b></p> |
| <p>Touch typing unit can be done at any time throughout the year.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                       |



# Girlington Primary School Computing Curriculum

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| Vocabulary | Address Book Attachment<br>Communication Compose Recipient<br>Email Email Simulation Inbox<br>Password Personal Information Trusted<br>Contact Animation Font Format Handles<br>Image Media Picture Styles PowerPoint<br>Slide Slide Notes / Presenter Notes<br>Transition Word Art | Action Alert Algorithm<br>Attribute Button Object<br>Collision Detection Debug<br>Design Event Flowchart<br>Interval Nesting Object<br>Output Procedure Repeat<br>Sequence Test Timer<br>Turtle object | Algorithm Angle<br>Command Repeat<br>Rotation Route Turtle<br>Object | Accelerometer Algorithm<br>Animation Gestures<br>Hardware Image Infinite loop<br>LED Output Repeat<br>Sequence Software<br>Sound output Speaker | Advanced Mode Average<br>Copy Tools Data Formula<br>Formula bar Formula<br>Wizard Function MAX<br>Merge Cells MIN<br>Operations Problem<br>Solving Range Sheet<br>Sum Total Tools | Binary Choice<br>Binary Tree<br>Branching Database<br>Data<br>Database<br>Debug Record |
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# Girlington Primary School Computing Curriculum

## Year 4

| Term                                | Autumn 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Autumn 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Spring 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Spring 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Summer 1                                                                                                                                                                                                                                                                                                                                                                                                                                                             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| Topic                               | Intro to Purple Mash<br>Animation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Unpacking Hardware & Software<br>Logo                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Logo<br>Effective Searching                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Effective Searching<br>Coding                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Coding<br>Introduction to AI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Micro:bit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Assessment                          | <p><b>Animation</b><br/>Children understand what animation is and can describe common techniques used to create it. They recognize that animations are made from individual frames shown in sequence and that speed depends on frames per second. They can compare hand-drawn and software-based animations, using both a flick book and digital tools to explore differences. They understand how onion skinning helps create smooth transitions by aligning objects between frames and can use this feature, along with copy-frame, to avoid abrupt endings in their own animations. Children can add sound and backgrounds to their animations and apply these elements according to a storyboard planner to ensure clear sequencing.</p> | <p>Children can read multi-step programs and accurately predict the outcome. They plan sequences using two or more commands before running the code. When code doesn't work as expected, they may find and fix errors independently, though complex code might still require support. They understand the repeat command and can plan simple repeat structures rather than relying on trial-and-error. Children explore repeating procedures to create more complex patterns, showing some mathematical understanding. They recognise that procedures make code more efficient and use them appropriately. They can adapt instructions within repeat commands to create and refine common shapes, using procedures to improve efficiency.</p> <p>Unpacking Hardware &amp; Software<br/>Children confidently identify manual, electrical, digital, and smart technologies, explaining how they simplify daily life. They accurately sort hardware into input, output, and storage categories and describe the functions of devices like keyboards and printers. They recognise various software types and explain how each supports specific tasks. Children describe how hardware and software interact in systems, using clear examples and well-sequenced diagrams showing input, process, and output. They use technical vocabulary precisely and demonstrate a strong understanding of how systems rely on all parts working together.</p> | <p>Effective Searching<br/>Children can explain what a search engine is, describe how it finds and shows results, and use clear keywords instead of full questions to get focused results. They understand that search engines rank results based on relevance, popularity, and sometimes paid adverts, and can explain why the first result might not always be the most reliable. They can refine searches by using techniques like quotation marks, minus signs, and filters for type or date, and check snippets before clicking to choose the most useful link. They can distinguish between facts, opinions, and beliefs, explain what fake news is, and use clues such as the source, date, and evidence from other sites to check reliability. They apply these skills with some independence, making thoughtful choices about which search results and sources to trust.</p> | <p><b>Coding</b><br/>Children can independently design, code, test, and debug a simple program in 2Code. They use selection ('if' and 'if/else' statements), variables, and timers confidently to control outcomes. They can use co-ordinates to place objects and loops to simplify repetitive code. Their programs are purposeful, and they show an understanding of how conditions affect which code is run. They can modify code to improve efficiency, such as using tags, and can explain how their program works using correct coding vocabulary.</p> | <p><b>Introduction to AI</b><br/>Children can explain AI as technology that learns from data to make predictions or create content. They correctly identify several AI tasks (such as finder, assistant, maker, personaliser, organiser) and give sensible examples. They define generative AI and understand that AI is not always right, so outputs should be checked. They write effective prompts that include a clear task, helpful details. They can refine prompts to improve results. Children demonstrate good digital citizenship by keeping personal information private, using AI kindly and thinking critically about trustworthiness. They can describe realistic future uses of AI and explain that people control AI through human oversight.</p> | <p><b>Micro:Bit</b><br/>Children can describe how if/else blocks are used in Freecode micro:bit to introduce selection of different outcomes. They can relate this to the use of sensors to detect changes and vary outputs based on what has been sensed. They can describe that a variable holds a value that can change as a program is run. They relate the use of variables to games they make and can use a random number variable in conjunction with a when gesture (input), if/else statements and outputs such as Display LED. Children can explain that if statements can be used to check the value of a variable and select a particular output. Children can combine their knowledge and skills to make games and simulations using a micro:bit.</p> |
| National Curriculum Subject Content |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                   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                         |
| Computer Science                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p>To know key commands and input simple instructions.<br/>To use a variety of commands to create shapes using multi-line mode.<br/>To use the Repeat command.<br/>To change the line thickness and colour.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <p>To know key commands and input simple instructions.<br/>To use a variety of commands to create shapes using multi-line mode.<br/>To use the Repeat command.<br/>To change the line thickness and colour.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <p>To create a simple computer program using coding structures previously encountered.<br/>To know what selection means in computer programming.<br/>To know how to use co-ordinates in computer programming.</p>                                                                                                                                                                                                                                                                                                                                            | <p>To explore methods that introduce loops in coding.<br/>To understand what a variable is in programming.<br/>To create a game that keeps score.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <p>To code a micro:bit to make a rock, paper and scissors game.<br/>To code micro:bits to make simulated dice.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Information Technology              | <p>To understand what animation is. To understand the term onion skinning and be able to use this technique for 2D computer animations.<br/>To know how to enhance simple animations using animation software.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>To understand what technology is, where we see it in everyday life, and how it helps us at school, home and beyond.<br/>To identify and describe different pieces of computer hardware and understand their functions.<br/>To understand what software is and how we use it to complete tasks.<br/>To explore how hardware and software interact to complete everyday tasks.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <p>To develop strategies to judge whether information online is true and if sources can be trusted</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <p>To understand what Artificial Intelligence is and some of the tasks it can carry out.<br/>To learn to communicate effectively with AI tools by writing clear and precise prompts.<br/>To learn how to be a good digital citizen when using AI.<br/>To think about how AI might develop in the future.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Digital Literacy                    | <p>To login to Purple Mash and access 2Dos.<br/>To access work and activities from Alerts, the My Work area, Tools and Topics</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <p>To understand what a search engine is, how it works and how to use simple keywords to find information online.<br/>To understand how search engines collect, sort and rank results, and why some results appear first.<br/>To learn advanced ways to improve searches so we can find the most accurate and useful results quickly.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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                         |
| Activities                          | <p>Unit: Introduction to Purple Mash<br/>L1: Logging in and Introducing 2Dos<br/>L2: Using the Purple Mash Homepage<br/><b>COMBINE THESE LESSONS</b></p> <p>Unit: Animation<br/>L1: Introduction to Animation<br/>L2: Onion Skinning<br/>L3: Enhancing a Simple Animation<br/>L4: Storyboarding an Animation</p>                                                                                                                                                                                                                                                                                                                                                                                                                             | <p>Unit: Unpacking Hardware &amp; Software<br/>L1: Technology and How it Helps Us<br/>L2: What is Hardware?<br/>L3: What is Software?<br/>L4: Systems Working Together<br/><b>(Could combine lessons)</b></p> <p>Unit: Logo<br/>L1: Introduction to Logo<br/>L2: Drawing letters</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>Unit: Logo<br/>L3: Change Line Colour and Thickness and use the Repeat Command<br/>Lesson 4: Using procedures</p> <p>Unit: Effective Searching<br/>L1: Searching the Internet<br/>L2: Ranking Results<br/>L3: Advanced Searching and Filtering</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>Unit: Effective Searching<br/>L4: Can We Trust What We Find Online?</p> <p>Unit: Coding<br/>L4: Looping Code<br/>L5: Number variables<br/>L6: Making a Playable game.<br/><b>(to complete over 4/5 weeks)</b></p>                                                                                                                                                                                                                                                                                                                                         | <p>Unit: Coding<br/>L4: Looping Code<br/>L5: Number variables<br/>L6: Making a Playable game.<br/><b>(to complete over 4 weeks)</b></p> <p>Unit : Introduction to AI<br/>L1: What is Artificial Intelligence?<br/>L2: Writing AI Prompts<br/>L3: Digital Citizenship and AI<br/>L4: The Future of AI<br/><b>(combine lessons over 2 weeks)</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                | <p>Unit: Micro:bits<br/>L1: Step counter<br/>L2: Night light<br/>L3: Rock, paper, scissors<br/>L4: Simulating dice</p> <p><b>To redo any parts of the Computing curriculum children found challenging or not covered.</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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# Girlington Primary School Computing Curriculum

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| Vocabulary | Animation Animation software Background Copy frame<br>Evaluate Frame Stop motion Frames per second<br>Onion skinning Sound effect<br><br>Application Component Computer System Digital Technology<br>Electrical Technology Hardware Input Manual Technology<br>Output Peripheral Process Program Smart Technology<br>Software Storage<br><br>Logo Logo commands Pen up Pen down Multi-line mode<br>Repeat Setps Setpc Procedure | Logo Logo commands<br>Pen up Pen down<br>Multi-line mode<br>Repeat Setps Setpc<br>Procedure<br><br>Crawl Exact match Internet<br>Fake news Filter Index<br>Keywords Rank Refine<br>Snippet Relevance Reliable<br>Source Search bar<br>Search engine Website | Crawl Exact match Internet<br>Fake news Filter Index<br>Keywords Rank Refine<br>Snippet Relevance Reliable<br>Source Search bar<br>Search engine Website<br><br>Algorithm Alert Attribute Co-ordinates Debug Design<br>Event Flowchart IF statement IF/ELSE statement Initialize<br>Input Loop Nesting Object Random Repeat Repeat until<br>Selection Sequence Tag Attribute Timer Tinker Variable | Artificial Intelligence<br>Automation Data Digital<br>Citizenship Format Future<br>Technology Generative AI<br>Human oversight Innovation<br>Prompt Prediction Privacy<br>Refine Reliable Trustworthy<br>Responsible behaviour | Accelerometer Data Logic<br>Gestures IF statement<br>IF/ELSE statement Selection<br>Infinite loop Light sensor<br>Sensor Simulation Variable |
|            |                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                |                                                                                                                                              |



# Girlington Primary School Computing Curriculum

## Year 5

| Term                                | Autumn 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Autumn 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Spring 1                                                                                                                                                                                                            | Spring 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Summer 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Summer 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| Topic                               | Word Processing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Coding                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Coding                                                                                                                                                                                                              | Micro:Bit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Spreadsheets                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Game Creator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Assessment                          | Children understand what a word processing program is for, and can independently create a new document. They can change text appearance, move around the document confidently, and choose formatting that supports readability and purpose. They recognise common icons and select the functions they need. Children use cut, copy and paste accurately and apply bullet points and numbering appropriately. They organise their work in a clear, logical way. Children can insert images, text boxes and shapes, and can resize or reposition these using wrapping tools. They can also create tables and edit basic properties, adding or deleting rows with some support. | Children can create more complex programs and are beginning to understand that there are ways to simplify code to make their programming more efficient. They can recall and apply previous coding knowledge in their code. Children understand the processes of decomposition and abstraction and can apply this knowledge when planning algorithms for a program. They can include sequence, selection and repetition in programs as well as use functions to make their programming more efficient. They test and debug their program as they go and can use logical methods to identify the approximate cause of any bugs but might need support to identify the specific line of code that is causing the problem. |                                                                                                                                                                                                                     | Children can explain the structure of their coding in a logical way, showing how it will affect the responses from the micro:bit. Children can explain the purpose of variables and use number variables to keep track of things such as a score. Children can explain how 'if' statements are used to create a code structure that includes selection. They write code to change the variable value and use 'if' statements to check the value of variables during the execution of the program and initiate actions dependent upon these values. Children make use of the micro:bit temperature sensor to record ambient temperature and code output dependent upon this. Children are able to explain what the pins on the micro:bit do and can use this as a form of input to initiate event commands. | Children can enter and organise data accurately, using clear headings and sensible formatting. They can create and edit formulae independently to solve problems such as conversions or totals. They can produce accurate line graphs with appropriate axes and titles. Children can analyse information to identify patterns or make decisions, including in weather investigations, school-fair planning or holiday budgeting tasks. Children can explain what makes a spreadsheet effective and suggest simple, practical improvements. | Children complete games using key features of 2DIY3D. They include baddie and collectable sprites, use basic customisation, and write clear instructions. Sprite placement supports gameplay, and games are usually well structured. Children can evaluate their own work and give basic peer feedback. Children work with some independence and respond well to feedback. Occasional prompting helps deepen their evaluations and improve design choices. Children's progress reflects secure understanding and increasing confidence with game creation. |
| National Curriculum Subject Content |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Computer Science                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | To understand some ways that code can be simplified so that it is easier to read and runs more efficiently.<br>To program a computer simulation using 2Code.<br>To know what decomposition and abstraction are in Computer Science.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | To understand what a function is and how functions work in code.<br>To understand what datatypes are and how they are used when coding with variables.<br>To read code, predict outcomes and identify and fix bugs. | To create a micro:bit story telling game.<br>To code a micro:bit to measure temperature and produce different outputs based on this.<br>To code a micro:bit to simulate a magic 8 ball.<br>To create an automatic scoreboard display using a micro:bit.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Information Technology              | To format text in a new Word document and then save it.<br>To learn how to edit text and apply more advanced formatting.<br>To learn how to adjust the layout of a Word document.<br>To learn how to insert and format images in Word.<br>To use tables in Word to organise information.<br>To combine Word skills to create and review a factsheet.                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | To refresh and extend understanding of formulae and functions from previous learning.<br>To use formulae in 2Calculate to convert measurements between different units.<br>To use 2Calculate to create and interpret line graphs that show how data changes over time.<br>To analyse weather data by using spreadsheets to identify patterns.<br>To use spreadsheets to plan and budget for an event.<br>To use a spreadsheet to plan a holiday.                                                                                           | To evaluate the features of a successful video game.<br>To plan a game in 2DIY3D.<br>To design and use game sprites.<br>To add features to a game world and check playability.<br>To evaluate games created by others.                                                                                                                                                                                                                                                                                                                                     |
| Digital Literacy                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Activities                          | <b>Unit: Word Processing</b><br>L1: Getting Started with Word<br>L2: Editing and Formatting Text<br>L3: Page Layout and Design<br>L4: Working with Images<br>L5: Working with Tables<br>L6: Creating a Fact Sheet<br><br>Could start coding lessons or recap Year 4 work on coding.                                                                                                                                                                                                                                                                                                                                                                                          | <b>Unit: Coding</b><br>L1: Coding Efficiently<br>L2: Simulating a Physical System<br>L3: Decomposition and Abstraction<br>(To complete each lesson over 2 weeks or repeat for consolidation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Unit: Coding</b><br>L4: Functions<br>L5: Datatypes<br>L6: Code Comprehension and Debugging<br>(To complete each lesson over 2 weeks or repeat for consolidation)                                                 | <b>Unit: Micro:bits</b><br>L1: Tell Me a Story<br>L2: Measuring Temperature<br>L3: Magic 8 Ball<br>L4: GOAL!!                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Unit: Spreadsheets</b><br>L1: Revisiting Spreadsheets<br>L2: Converting Measurements<br>L3: Creating Line Graphs<br>L4: Tracking Weather Patterns<br>L5: Planning and Budgeting an Event<br>L6: Planning a Holiday                                                                                                                                                                                                                                                                                                                      | <b>Unit: Game Creator</b><br>L1: Introduction to Video Gaming<br>L2: Planning a Game<br>L3: Customising Sprites<br>L4: Game Environment<br>L5: Evaluating Finished Games<br><br>To redo any parts of the Computing curriculum children found challenging.                                                                                                                                                                                                                                                                                                  |
| Vocabulary                          | Border<br>Bullet points<br>Cell<br>Column<br>Copy<br>Document<br>Cut<br>Editing<br>Formatting<br>Font<br>Handles<br>Image<br>Paste<br>Page margins<br>Picture<br>Styles<br>Page orientation<br>Row<br>Table<br>Text alignment<br>Text wrapping<br>Word processor                                                                                                                                                                                                                                                                                                                                                                                                             | Abstraction<br>Action<br>Alert<br>Algorithm<br>Design<br>Attribute<br>Computer generated<br>variable<br>Debug<br>Concatenation<br>Datatype<br>Decomposition<br>Event<br>Efficient<br>Flowchart<br>Friction<br>Function<br>IF statement<br>IF/ELSE statement<br>Initialise<br>Input<br>Nesting<br>Object<br>Physical System<br>Prompt<br>Random<br>Repeat<br>Repeat until<br>Selection<br>Sequence<br>Simplify<br>Simulation<br>String<br>Sub-routine<br>Tag<br>attribute<br>Timer<br>Variable                                                                                                                                                                                                                           |                                                                                                                                                                                                                     | Data<br>Electrical<br>Circuit<br>Guesses<br>IF statement<br>Logic<br>Pins<br>Random<br>Repeat<br>Selection<br>Sleep<br>Variable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Axis/Axes<br>Budget<br>Cell<br>Column<br>Continuous data<br>Conversion<br>Forecast<br>Cost/Expense<br>Formula<br>Formula wizard<br>Income<br>Function<br>Line graph<br>Meteorologist<br>Millibar<br>Plot<br>Profit<br>Trend<br>Row<br>Unit                                                                                                                                                                                                                                                                                                 | Condition<br>Data<br>Database<br>Edit<br>Field<br>Filter<br>Group<br>Linked tables<br>Operator<br>Query<br>Record<br>Sort<br>Validation                                                                                                                                                                                                                                                                                                                                                                                                                    |



# Girlington Primary School Computing Curriculum

## Year 6

| Term                                | Autumn 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Autumn 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Spring 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Spring 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Summer 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Summer 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| Topic                               | Coding                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Spreadsheets - Excel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Introduction to Python                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Graphing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Binary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 3D Modelling<br>Networks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Assessment                          | Children can confidently use 2Code to design and program interactive activities using variables, inputs, cloning, and hotspots. They can follow and create simple flowcharts and use them to debug and improve their programs. They understand how to build user interfaces and structure their code using functions and subroutines. They apply decomposition and abstraction to break down and simplify tasks. They adapt code to personalise their work, including changing room content in a text-based adventure or modifying outputs based on user input. They show independence in debugging and generally create programs that meet the design specification | Children can confidently enter, edit and format data to make a spreadsheet clear and easy to read. They can write simple formulae and reliably use functions such as SUM, AVERAGE, MIN and MAX to analyse information. Children can create bar, line and pie charts, select appropriate chart types for different data sets, and apply titles and labels to support understanding. They can sort and filter data appropriately and use these tools to answer questions or spot patterns. When errors appear, such as #DIV/0! or #NAME, children can identify likely causes and correct them. They can organise their spreadsheet effectively across multiple worksheets. | Children can compare the main visual differences between text and block-based coding. They recall some of the software that the Python coding language is used to create in the everyday world. Children can write simple commands that print outputs to the screen. With support, they can debug syntax errors in their lines of code such as failing to use quotes for strings or forgetting to close brackets. They can write code for a looping code structure and can determine how many times it loops. With support, children can print concatenations of variable values and strings to control the presentation of output on the screen. With support, children can import the sleep function and use it to add pauses in the program. | Children can explain the advantages of using graphing software to create common graph types compared to traditional pen and paper methods. They can select the most appropriate graph types for data given or collected. Children experiment with software features such as selection of chart type, scale interval size for y-axis, category colour and dataset colour to present their graphs in the best possible way. Children can export charts and import them into publishing files to produce short reports. Children can use and compare more than one piece of software to create graphs and identify the benefits each one has. | Children are beginning to understand that computers use binary to store data. They can identify that binary uses only the digits 0 and 1, and that these represent on and off signals inside a computer. With support, they can recognise patterns in binary numbers and may use visual aids like cards or grids to help count or represent values. They are starting to link binary to computer storage but need scaffolding to complete tasks like binary-to-decimal conversion or using binary variables in simple coding tasks. | Children can identify what Computer-Aided Design is and name some benefits of using CAD. They can explore some basic tools in 2Design and Make. Children can create a simple model and view it from different perspectives but may need guidance to move points or apply nets accurately. Their prototypes show developing awareness of packaging purpose, though designs may not fully meet the design brief. When evaluating, they can give simple comments, such as what they like about their model, but may need support to explain how it protects or promotes a product. Children show a simple understanding of the purpose of a network. They need support to explain networks in more specific detail. For example, distinguishing between a LAN and a WAN. Their understanding of the internet compared with the World Wide Web is limited without the scaffolding of examples to use. They are developing their understanding of safe, respectful online communication and can be supported by having a trusted adult to talk through specific scenarios with. |
| National Curriculum Subject Content |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Computer Science                    | To understand ways to use cloning in 2Code.<br>To explore the use of hotspots in 2Code.<br>To understand the different options for generating and using user input in 2Code.<br>To use flowcharts to test and debug a simulation.<br>To use program design documentation to produce a program.<br>To understand how 2Code can be used to make a text-based adventure game.                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | To understand that Python is a text-based coding language and enter simple commands.<br>To use Python to perform mathematical calculations.<br>To be able to use repetition and Python library functions.<br>To understand how Python in Pieces can be used to program a graphical user interface.                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | To recognise that digital systems represent all types of data using number codes in patterns of 1s and 0s (called binary digits).<br>To represent decimal (whole) numbers in a binary format.<br>To explore how division by two can be used as a technique to determine the binary representation of any whole number by collecting remainder terms.<br>To represent the state of an object in a game as active or inactive using the respective binary values of 1 or 0.                                                           | To understand what a computer network is and identify examples of networks at home, school and in the wider world.<br>To understand the difference between the internet and the World Wide Web and explore the services they provide.<br>To explore how the internet can be used for communication and collaboration, and how to do this safely and respectfully.<br>To explore who is in charge of the internet and how rules and website blocking can affect people, society and online platforms.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Information Technology              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | To understand and use basic formatting in Excel.<br>To develop skills in using basic functions in Excel.<br>To create and format charts in Excel.<br>To sort and filter data within a spreadsheet.<br>To understand and use advanced functions in Excel.<br>To combine Excel skills to create an effective spreadsheet for a given purpose.                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | To create comparative bar charts using graphing software.<br>To create pie charts using graphing software.<br>To create line graphs using graphing software.<br>To present data in graphs to support an argument.                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | To explore and develop simple 3D models using CAD software.<br>To explore the effect of moving points when designing.<br>To plan, design and begin creating packaging to meet a design brief.<br>To refine, assemble and evaluate the finished packaging prototype.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Digital Literacy                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Activities                          | <b>Unit: Coding</b><br>L1: Using Cloning<br>L2: Using Hotspots<br>L3: User Input<br>L4: Flowcharts and Control Simulations<br>L5: Using Program Design Documents<br>L6: Text-Based Adventures                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Unit: Spreadsheets with Excel</b><br>L1: Introduction to Excel<br>L2: Using Basic Functions<br>L3: Charts<br>L4: Sorting and Filtering Data<br>L5: Advanced Functions<br>L6: Using a Spreadsheet to Model a Situation                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Unit: Introduction to Python</b><br>L1: Text Output<br>L2: Python and Mathematical Calculations<br>L3: Using Repeat<br>L4: Moving Sprites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Unit: Graphing</b><br>L1: Comparative Bar Charts<br>L2: Pie Charts<br>L3: Line Graphs<br>L4: Solving a Problem                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>SAT's Priority</b><br><b>Unit: Binary (Optional Unit - Can be completed at other times of the year)</b><br>L1: What is Binary?<br>L2: Counting in Binary<br>L3: Converting from Decimal to Binary<br>L4: Game States                                                                                                                                                                                                                                                                                                             | <b>Unit: 3D Modelling</b><br>L1: Introducing Computer Aided Design<br>L2: Moving Points<br>L3: Design for a Purpose<br>L4: Refining and Assembling a Design<br><br><b>Unit: Networks</b><br>L1 and L2: What is a network?<br>The Internet and the World Wide Web<br>L2 and L3: Communicating and Collaborating Online<br>Who Controls the Internet?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |



# Girlington Primary School Computing Curriculum

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| Vocabulary              | Abstraction Action Alert<br>Algorithm Design Clone<br>Attribute Repeat over<br>Computer generated<br>variable Debug Tag<br>Concatenation Datatype<br>Decomposition Hotspot<br>Event Flowchart Tinker<br>Function Background<br>IF statement IF/ELSE<br>statement Initialise<br>Input Nesting Object<br>Prompt Print to screen<br>Random Repeat Repeat<br>until Selection Sequence<br>Simulation String Timer<br>Draggable attribute<br>Sub-routine attribute<br>Variable User interface                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Average Cell Chart COUNT<br>Chart labels Column COUNTA<br>Continuous data COUNTIF<br>Filter Formatting<br>Formula Function IF MAX/MIN<br>Row Sort SUM Workbook<br>Worksheet | Command Co-ordinate<br>Floating point number<br>Floor division Function<br>Loop Modulo operator<br>Print Python library<br>Sleep Sprite String<br>Range Variable | Chart Comparative bar chart<br>Data Dataset Dual bar chart<br>Line graph Pie chart | Action Binary Bit<br>Decimal Design Digit<br>Game states Integer<br>Nanotechnology Object<br>Transistor Variable | 3D printing<br>Computer Aided Design – CAD<br>Design brief Model Net Points<br>Prototype 3D 2D |
| 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> |                                                                                                                                                                             |                                                                                                                                                                  |                                                                                    |                                                                                                                  |                                                                                                |