

# Computing Curriculum Overview

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|---------------------|--|--|--|--|---|--|
| <b>Rationale</b>    | <p><b>For all children to be</b></p> <ul style="list-style-type: none"> <li>- aware of how to stay safe online and use technology effectively and responsibly</li> <li>- versatile, confident and skilled to use technology to support their learning creatively</li> <li>- able to use a wide range of technology to express themselves and communicate digitally</li> <li>- adaptable and responsive users of technology</li> </ul>  |  |  |  |   |  |
| <b>Approach</b>     | <ul style="list-style-type: none"> <li>• Structured learning experiences with a clear balance of skill development in three strands of learning:             <ul style="list-style-type: none"> <li>○ <b>Multimedia</b>- still text &amp; images; creating images; moving text &amp; images - video; animation and presentation; sound - see <i>also music overview</i></li> <li>○ <b>Handling Data</b>- research/internet, databases, presenting and calculating data</li> <li>○ <b>Programming</b> - manipulating software; manipulating hardware- see <i>also Design Technology overview</i></li> <li>○ <b>Technology in our Lives</b>-</li> <li>○ <b>Online safety</b>- on-going modelling and talking about safe and responsible use of technology, with one discrete lesson at the start of each half term.</li> </ul> </li> <li>• Online safety taught half termly with ongoing reinforcement in safe all uses of technology - see <i>online safety overview</i></li> <li>• Range of technology platforms used to allow versatility of technology application</li> <li>• Constant review to maximize use of latest technology, applications, systems</li> <li>• Specialist teaching used for some more technical aspects of the computing curriculum and to support non-specialists subject knowledge.</li> </ul> |  |  |  |   |  |
| <b>Nursery</b>      | <b>Technology in Our Lives</b>   |  | <b>Multimedia</b>  |  | <b>Programming</b>  |  |
|                     | <p><b>Getting to know our technology</b><br/>           routines, safe handling, sharing, rules, charging, exploring<br/>           can tell you about technology that is used at home and in school<br/>           can operate simple equipment<br/>           use a safe part of the internet to play and learn</p>  |  | <p><b>Recording experiences</b><br/>           how to record and save and share achievements, and events using: sound, image, video.</p> |  | <p><b>Exploration, following instructions, sequences, directions, solving problems</b><br/>           Real life; cooking, games, instructions<br/>           predicting and controlling, problem solving<br/> <i>Beebots, Programmable toys</i></p> |  |
| <b>Reception</b>    | <b>Technology in our Lives</b>   | <b>Multimedia</b>  | <b>Handling data</b>   | <b>Multimedia</b>  | <b>Programming</b>  | <b>Multimedia</b>  |
|                     | <b>Class technology</b>  | <b>Creating images</b>   | <b>Databases</b>   | <b>Video Animation</b>   | <b>Hardware</b>   | <b>Researching and presenting</b>  |
| <b>Key learning</b> | Safe use, looking after and routines for use of class technology<br>e.g. iPad, desktop, IWB, voice recorders   | <b>Create class photo book</b><br>individual page per child                          | <b>Research and present information</b><br>about our class e.g. likes/dislikes/interests   | <b>Introduce digital drawing and animation</b><br>Create characters and settings<br>Animate own drawings | <b>Introduce algorithms</b><br>Control in simple scenarios<br>Sequences; Simon says, getting dressed, instructions.<br>Use directional language<br>Progress to hardware<br>Explore and refine control   | Create a page on subject of interest with support<br>e.g. animal<br>Use copy and paste images<br>Create title, caption<br>Collaborate to create a group book/presentation<br>Share with others e.g. to ibooks<br><i>Book Creator</i> |
| <b>Links</b>        | <b>Recording experiences</b><br>how to record and save and share achievements, and events using: sound, image, video.<br>Talking about the different technology they see at home and in school.<br><i>Hello Ruby stories. Inside the computer</i><br><i>The internet</i>   | Take, save and caption photos<br>Send images e.g. airdrop<br><br><i>Book creator</i> | Use a tally chart and converting to pictograms<br>Interpret and present findings<br><br><i>Teaching Graphs</i>                           | <b>Traditional Tales</b><br><br><i>Puppet pals/ Sketchbook</i>   | <i>Beebots/Sphero</i>   |  |
| <b>Program</b>      |  |  |  |  |   |  |

|                     |   |   |  |  |  |  |
|---------------------|---|---|--|--|--|--|
| <b>Y1</b>           | <b>Multimedia</b>   | <b>Handling data</b>  | <b>Programming</b>   | <b>Programming</b>   | <b>Multimedia</b>  | <b>Technology in Our Lives</b>   |
|                     | <b>Still text and image</b>   | <b>Databases</b>  | <b>Hardware</b>  | <b>Software</b>  | <b>Moving images</b>   | <b>Researching and presenting</b>  |
| <b>Key learning</b> | Create book - multiple pages<br><i>drawing, front cover, layout, photos, cropping, combining, labelling, formatting, sequencing,</i><br><b>Traction Man</b> | Pupil survey<br>use tallies to collect data<br>create and interpret pictograms<br>present findings orally<br>e.g. most popular game/fruit/sandwich<br><b>DT - Design and create a tea party</b> -survey of party<br>food for planning<br><i>Teaching Graphs</i> | Programming and controlling movement<br><br>planning - pseudocode<br>sequences of instructions<br>application of algorithms<br>precise directions<br>problem solving<br><i>Beebot Challenge</i>                    | Control in simple scenarios<br><br>plan and generate commands<br>accurately sequence<br>use repetition<br>improve commands<br><i>Intro to Scratch Junior</i>   | Animation of familiar text<br>using papercut style<br>upload images<br>cut out and save<br>animate and zoom features<br>tell a story<br><b>Cloudland/Where the Wild Things Are (Geog)</b><br>Animate chosen parts of story<br><i>Puppet Pals</i> | how to use keywords<br>evaluate website usefulness<br>select images/captions<br>copying +pasting<br>formatting for visual impact<br>layering/collage<br>Create a presentation for a chosen country<br><b>(Geog)</b><br><i>PowerPoint/ Book creator</i> |
| <b>Links</b>        | Create as comic format, Inc. voiceover<br><i>Book Creator</i>   |   |  |  |  |  |
| <b>Program</b>      |   |   |  |  |  |  |
| <b>Y2</b>           | <b>Multimedia</b>   | <b>Programming</b>  | <b>Technology in Our Lives</b>   | <b>Programming</b>   | <b>Handling Data</b>   | <b>Multimedia</b>  |
|                     | <b>Creating Images</b>  | <b>Control - software</b>   | <b>Research/Presentation</b>   | <b>Hardware</b>  | <b>Database</b>  | <b>Animation /multimedia</b>   |
| <b>Key learning</b> | Introduction to digital palette<br>exploration of tools, backgrounds, cut and layer<br>shape,<br>vary use of line and colour                                | Re-enact story through code -<br>draw characters and settings<br>create story<br>use speech bubbles<br>sequencing<br><b>Aesop's Fables</b><br><i>Scratch Junior</i>   | <i>Explore menus, hyperlinks</i><br><i>evaluate sites</i><br><i>Integrate voice and visual interaction</i><br><i>Present voiceover to present pages in an e-book</i><br><br><i>Link to history 'life changers'</i> | <i>Create patterns</i><br><i>Explain programs</i><br><i>Solve problems</i><br><i>Break problem into smaller parts</i><br><i>Sequence of commands</i><br><i>Create shapes and patterns</i><br><i>Correct errors (debugging)</i> <i>Bluebots</i> | Use online databases<br>Use branching databases<br>What is the favorite choc bar?<br>What kind of choc bar should be created?<br><i>teaching graphs/2graph</i><br><b>Charlie and the Chocolate factory</b>                                       | Create multimedia dance routine<br>Save still images<br>Create as video<br>Replicate movement using animation<br>Use Lego figures (or alternative)   |
| <b>Links</b>        | shape,<br>vary use of line and colour<br><i>Digital artists</i><br><b>Art - Natural form</b> <i>Book creator</i>  |   |  |  |  |  |
| <b>Program</b>      |   |   |  |  |  |  |

| Y3   | **Programming  | Multimedia  | Technology in our Lives   | Multimedia  | **Programming   | *Handling Data          |
|--|--|---|---|---|---|-------------------------|
|  | Hardware   | Information/Presentation  | Research /presentation  | Animation   | Software  | Databases/ presentation |
| <p><b>Key learning</b></p> <p>Follow steps in an algorithm<br/>Convert an algorithm into code.<br/>Apply repetition in programs<br/>Begin to use and understand the need for variables.<br/>Understand conditional programming<br/>Follow steps in a program<br/>Complete the next step in a program<br/>Debug and correct mistakes either in my own or other people's work.</p> <p><b>Links</b></p> <p>Use Microsoft block editor<br/><b>Make a dice</b><br/>BBC Micro Bit</p> <p><b>Program</b></p>  | <p>Create script<br/>Combine/select graphics<br/>Use green screen<br/>Manage autofocus<br/>Present and record<br/>Review and improve</p> <p><b>Weather Reports</b><br/>I Can present program or similar Green screen App</p>   | <p>Use internet searches effectively<br/>Develop criteria for info/image selection<br/>Select use and combine a variety of software on a range of digital devices to create content<br/>Manipulate images for effect<br/>Organise graphics and text<br/>Integrate online content<br/>Use hyperlinks</p> <p><b>Romans:</b><br/>'What your teacher didn't tell you'<br/>Book creator/Keynote presentation</p> | <p>Create images using a Drawing App<br/>Copy resources into Editing App to make PNG file<br/>Plan animation using a story board<br/>Record shoot and edit a simple narrative in the form of an animation.<br/>Save and edit, reshooting to ensure high quality in the use of sound and images.<br/>Midsummer Night's Dream<br/>Puppet Pals</p>   | <p>Scratch online version</p> <p>Use programming software/Apps to create procedures and use in longer programs<br/>Solve problems by decomposing them into smaller parts</p> <p>Online version of Scratch</p>   | <p>Can filter and sort records in a database to answer questions<br/>Create a database by asking questions to find relevant information<br/>Evaluate findings<br/>Find information for a graph on given topic<br/>Create information campaign based on findings<br/>Food and seasonality - evaluate understanding of community<br/>Wildforms database training</p>                                    |                         |
| Y4   | **Programming  | *Multimedia   | Technology in Our Lives   | *Information  | **Multimedia  | Multimedia              |
|  | Hardware   | Computational thinking  | Networks/internet   | *Databases  | **Animation - check SG  | Presentation/video      |
| <p><b>Key learning</b></p> <p>Design programs that accomplish specific goals<br/>Adapt Lego block code to solve a similar problem<br/>Systematically debug programs by trial and error during driving maze challenges and explaining fixes to others in group.<br/>Work with and identify various forms of input/output (Sensors and motors)<br/>Record tasks in a group journal<br/>Reference Computational Thinking approaches<br/><b>Tinkering, creating, debugging, persevering and collaborating</b></p> <p><b>Links</b></p> <p>Lego Mindstorms</p> <p><b>Program</b></p> | <p>Puzzling within different systems<br/>apply logic and review<br/>Read for understanding<br/>Problem solving in gaming adventure<br/>Apply computational thinking</p> <p>Joe Moretti Sleuth IT</p>   | <p>Evaluate techniques to change behavior<br/>Understand working of networks/internet<br/>use search technologies effectively<br/>Understand how searches ranked<br/>Develop presentation techniques<br/>Combining, text, visuals</p> <p>Why wait? Climate change presentation to chosen audience</p> <p>Keynote/PowerPoint</p>   | <p>Introduction to spreadsheets<br/>Add text and numbers to a spreadsheet cell<br/>Add simple formulae<br/>Change the appearance of cells<br/>Present data in a graph, selecting the most appropriate layout<br/>Answer questions and present findings in the form of a presentation<br/>School lunchtime opinion poll or other topical issue<br/>Wild forms<br/>Present – keynote<br/>Excel</p>  | <p>Plan a simple animation using a storyboard<br/>Shoot frames to combine in an animation<br/>Edit an animation to make it more realistic<br/>Create an add soundtrack and sound effects<br/>Add titles and credits</p> <p>Plan and create a short-animated sequence to communicate a specific idea, using a story board .and timeline</p> <p>Kandinsky or other still self-generated image from artwork.<br/>Puppet Pals/I Can Animate</p> | <p>Combine video, images and text add colours and backgrounds and formatting to improve work.<br/>Record voice overs and edit content and through peer and self-assessment evaluate work and make improvements<br/>Define audience<br/>Adapt presentation for material and audience<br/>Presentation of poetry recital Poetry Slam</p> <p>Create voting system?<br/>i movie, book creator keynote</p> |                         |
| Y5   | *Multimedia  | Technology in our Lives   | Multimedia  | *Handling Data  | **Programming   | Multimedia              |
|  | Computational thinking   | Research/Presentation   | Creating images   | Databases   | Hardware  | Film making             |
| <p><b>Key learning</b></p> <p>Puzzling within different systems<br/>apply logic and review<br/>Read for understanding<br/>Problem solving in gaming adventure<br/>Apply computational thinking</p> <p><b>Links</b></p> <p>Joe Moretti Sleuth IT</p> <p><b>Program</b></p>  | <p>Describe different parts of the internet<br/>Use a search engine to find appropriate information and check its reliability<br/>Recognize and evaluate different types of information found on the www<br/>Find out who information on a webpage belongs to<br/>Can recognize ways that websites advertise their products to us.</p>                     | <p>Create images using a range of techniques to develop a particular style.<br/>Choose and adapt tools from a tool bar to create textures and marks<br/>Explore the digital artwork of David Hockney</p> <p>David Hockney Art Project</p> <p>Brushes</p>  | <p>Thames 21 - climate Science Project</p> <p>Use data from Weather stations across the MAT both in and outside.<br/>design and create a data base<br/>Investigate online databases<br/>Create graphs from Databases<br/>Present findings in the form of documents, graphs or presentations and share findings with others.<br/>Wildforms/Excel<br/>Internet - influence/ cookies</p>             | <p>Design, write a program linked to physical systems (Sphero)<br/>Plan test algorithms and programs detecting and correcting errors as needed<br/>Use variables in programs<br/>Solve problems by</p> <p>-Sphero/ Microsoft Blocks</p>   | <p>Bo Develop script, setting, Manage roles Framing moments<br/>Plan and create a short film thinking about camera angles and settings.<br/>Develop plot<br/>Plan using a shot list<br/>Add music titles and music</p> <p>English text choice<br/>iMovie or Clips App.</p>  |                         |
| Y6   | **Programming  | *Technology in Our Lives  | **Programming   | Technology in Our Lives   | Multimedia  | *Multimedia             |
|  | Software   | Networks  | Hardware  | Databases   | eBook   | Computational Thinking  |
| <p><b>Key learning</b></p> <ul style="list-style-type: none"> <li>- Use textual programming language (Python)</li> <li>- Use sequence, selection and repetition, work with variables</li> <li>- Control input output device (Sphero) using text-based coding language.</li> <li>- Python</li> </ul> <p><b>Links</b></p> <p>Sphero, Microbits or similar</p> <p><b>Program</b></p>  | <p>Understand networks including the internet provide multiple services such as the world wide web.<br/>Research how networks and the internet work<br/>Use search engines effectively and know how search results are selected and ranked.<br/>Identify different parts of computing devices<br/>Know the difference between the Internet and the WWW</p> | <p>Create and refine sequences of commands using Lego programming and pseudo code to complete practical problems.<br/>Plan, create, test and refine control sequences which use inputs and outputs to control events (e.g. driving a robot through an obstacle course.<br/>Write and debug programs that accomplish specific goals.</p> <p>Lego Mindstorms</p>  | <p>Design a more complex spreadsheet model for a purpose.<br/>Pupil Survey<br/>Identify issue to survey school<br/>Clarify parameters<br/>Develop key questions<br/>Administer findings<br/>Collate and analyse<br/>Decide on best visuals to present key findings<br/>Check reliability of data<br/>Design a data capture form.<br/>Present data to a specific audience.<br/>Excel Wildforms</p> | <p>Undertake creative project that involves, selecting, using and combining images and media from a variety of self-made and online sources.<br/>Create a consistent design for work that shows an understanding of the needs of the audience and the purpose of the project.</p> <p>Yellow spotted lizard</p> <p>Year books</p>  | <p>Puzzling within different systems<br/>apply logic and review<br/>Read for understanding<br/>Problem solving in gaming adventure<br/>Apply computational thinking</p> <p>Joe Moretti Sleuth IT</p>  |                         |