



## Windermere Primary School

### Progression map: Computing

**Intent:** The computing curriculum has undergone enormous changes in recent years. At Windermere we recognise the importance of developing an enquiring IT literate mind that will be able to take on the digital challenges of a workplace in ten to fifteen years' time, which we can barely imagine. Our curriculum aims to provide the pupils with the problem solving skills to be digitally literate across a wide range of devices and software.

| Spring        | EYFS   | KS1   |  | KS2  |  |   |  |
|---------------|--|---|--|--|--|---|--|
|               | Reception  | Year 1  | Year 2   | Year 3   | Year 4   | Year 5  | Year 6   |
| <b>Skills</b> | <p><b>Programming</b><br/>Explore/play using sphero indi</p> <p>Choose mats to make indi move in specific ways</p> <p><b>Creating media- digital painting</b><br/>Create/colour pictures using paint brushes on 2paint (purple mash)<br/>Select different paint colours<br/>Change the width of the brush stroke</p> | <p><b>Programming A-moving a robot</b><br/>Enact a given word<br/>Predict the outcome of a command on a device<br/>List which commands can be used on a given device<br/>Run a command on a floor robot<br/>Choose a command for a given purpose<br/>Choose a series of words that can be enacted as a program<br/>Choose a series of commands that can be run as a program</p> | <p><b>Creating media- Making Music</b><br/>Use a computer to create a musical pattern<br/>Creating music for a purpose<br/>Reviewing and refining computer work<br/><b>Data and information- pictograms</b><br/>Creating a pictogram<br/>Selecting objects by attribute and making comparisons<br/>Presenting information using a computer</p> | <p><b>Creating media- stop-frame animation</b><br/>Set up the work area with an awareness of what will be captured<br/>Plan an animation using a storyboard<br/>Capture an image<br/>Use the onion skinning tool to review subject position<br/>Move a subject between captures<br/>Review a captured sequence of frames as an animation</p> | <p><b>Creating media- audio production</b><br/>Record sound using a computer<br/>Play recorded audio<br/>Import audio into a project<br/>Delete a section of audio<br/>Change the volume of tracks in a project<br/><b>Data and information- data logging</b><br/>Use a digital device to collect data automatically<br/>Choose how often to automatically</p> | <p><b>Creating media- video production</b><br/>Use different camera angles<br/>Use pan, tilt and zoom<br/>Identify features of a video recording device or application<br/>Combine filming techniques for a given purpose<br/>Determine what scenes will convey your idea<br/>Choose to reshoot a scene or improve later through editing<br/>Decide what changes I will make when editing</p> | <p><b>Creating media- web page creation</b><br/>Review an existing website (navigation bars, header)<br/>Create a new blank web page<br/>Add text to a web page<br/>Set the style of text on a web page<br/>Embed media in a web page<br/>Add web pages to a website<br/>Insert hyperlinks between pages<br/>Insert hyperlinks to another site<br/>Preview a web page (different screen sizes)</p> |

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|  | <p>With help log in to purple mash</p> <p>Develop mouse control to use the paintbrush</p> <p>Find letters in keyboard to type name on work</p> | <p>Build a sequence of commands in steps</p> <p>Combine commands in a program</p> <p>Run a program on a device</p> <p><b><u>Data and information- grouping data</u></b></p> <p>Identify some attributes of an object</p> <p>Collect simple data</p> <p>Show that collected data can be counted</p> <p>Describe the properties of an object</p> <p>Choose an attribute to group objects by</p> <p>Group objects to answer questions</p> <p>Explain that objects can be grouped by similarities (attribute)</p> <p>Describe a group of objects (based on commonality)</p> |  | <p>Remove frames to improve an animation</p> <p>Add media to enhance an animation</p> <p><b><u>Data and information- branching databases</u></b></p> <p>Create questions with yes/no answers</p> <p>Choose questions that will divide objects into evenly sized subgroups</p> <p>Repeatedly create subgroups of objects</p> <p>Identify an object using a branching database</p> <p>retrieve information from different levels of the branching database</p> | <p>collect data samples</p> <p>Use a set of logged data to find information</p> <p>Use a computer program to sort data by one attribute</p> <p>Export information in different formats</p> | <p>Use split, trim and crop to edit a video</p> <p><b><u>Data and information- flat-file databases</u></b></p> <p>Choose different ways to view data</p> <p>Choose which attribute and value to search by to answer a given question (operands)</p> <p>Ask questions that need more than one attribute to answer</p> <p>Choose which attribute to sort data by to answer a given question</p> <p>Choose multiple criteria to search data to answer a given question (AND and OR)</p> <p>Select an appropriate graph to visually compare data</p> | <p>Change the appearance of text</p> <p><b><u>Data and information - Introduction to Spreadsheets</u></b></p> <p>Calculate data using a formula for each operation</p> <p>Use functions to create new data</p> <p>Use existing cells within a formula</p> <p>Choose suitable ways to present spreadsheet data</p> |
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|                  |  |   |  |   |  | Choose suitable ways to present information to other people   |   |
| <b>Knowledge</b> | <p><b><u>Programming</u></b><br/>Develop understanding that different mats cause indi to move in different ways<br/>Understand what a command is<br/>Recall different commands</p> <p><b><u>Creating media- digital painting</u></b><br/>Recognise that computers can be used to paint<br/>Recognise that tools can be changed</p> <p><b>Barefoot Springtime Busy bodies</b></p> | <p><b><u>Programming A-moving a robot</u></b><br/>Recall words that can be enacted<br/>Explain what a given command does<br/>Match a command to an outcome<br/>Understand that a program is a set of commands that a computer can run<br/>Recall that a series of instructions can be issued before they are enacted</p> <p><b><u>Data and information- grouping data</u></b><br/>Identify that objects can be counted<br/>Recognise that information can be presented<br/>Recognise that information can</p> | <p><b><u>Creating media- Making Music</u></b><br/>Saying how music can make us feel<br/>Identifying that there are patterns in music<br/>Describing how music can be used in different ways<br/>Showing how music is made from a series of notes</p> <p><b><u>Data and information- pictograms</u></b><br/>Recognising that we can count and compare objects using tally charts<br/>Recognising that objects can be represented as pictures<br/>Recognising that people can be described by attributes</p> | <p><b><u>Creating media- stop-frame animation</u></b><br/>Explain that an animation is made up of a sequence of images<br/>Identify that a capturing device needs to be in a fixed position<br/>Recognise that smaller movements create smoother animation<br/>Explain the need for consistency in working<br/>Explain the impact of adding other media to an animation<br/>Explain that a project must be exported so that it can be shared</p> <p><b><u>Data and information- branching databases</u></b></p> | <p><b><u>Creating media- audio production</u></b><br/>Identify that sound can be recorded<br/>Identify that an input device is needed to record sound<br/>Identify that output devices are needed to play audio<br/>Recognise that recorded audio can be stored on a computer<br/>Recognise that audio can be edited<br/>Recognise that sound can be represented visually as a waveform<br/>Recognise that audio can be layered so that multiple sounds can be played at the same time</p> | <p><b><u>Creating media- video production</u></b><br/>Explain the features of video as a visual media format<br/>Recognise which devices can and can't record video<br/>Explain the purpose of a storyboard<br/>Recognise that filming techniques can be used to create different effects<br/>Recognise the need to regularly review and reflect on a video project<br/>Identify videos can be improved through and reshooting or editing<br/>Identify that videos can be edited on a</p> | <p><b><u>Creating media- web page creation</u></b><br/>Recognise the relationship between HTML and visual display<br/>Recognise that web pages can contain different media types<br/>Recognise that web pages are written by people<br/>Recognise that a website is a set of hyperlinked web pages<br/>Recognise components of a web page layout<br/>Consider the ownership and use of images (copyright)<br/>Recognise the need to preview pages (different screens / devices)</p> |

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|  |  | be presented in different ways |  | <p>Investigate questions with yes/no answers</p> <p>Identify attributes that you can ask yes/no questions about</p> <p>Select an attribute to separate objects into two similarly sized groups</p> <p>Explain that a branching database is an identification tool</p> <p>Recognise that a data set can be structured using yes/no questions</p> <p>Explain that a well-structured branching database will enable you to identify objects using fewer questions</p> <p>Relate two levels of a branching database using AND</p> | <p>Consider the results of editing choices made</p> <p><b><u>Data and information-data logging</u></b></p> <p>Suggest questions that can be answered using a table of data</p> <p>Identify data that can be logged over time</p> <p>Identify that sensors are input devices</p> <p>recognise that a sensor can be used as an input device for data collection</p> <p>Explain that a data logger captures 'data points' from sensors over time</p> | <p>recording device or on a computer</p> <p>Explain the limitations of editing video on a recording device</p> <p>Recognise projects need to be exported to be shared</p> <p><b><u>Data and information-flat-file databases</u></b></p> <p>Explain that a computer program can be used to organise data</p> <p>Explain that tools can be used to select data to answer questions</p> <p>Outline how ordering data allows us to answer some questions</p> <p>Outline how operands can be used to filter data</p> | <p>Recognise the need for a navigation path</p> <p>Recognise the implications of linking to content owned by others</p> <p><b><u>Data and information - Introduction to Spreadsheets</u></b></p> <p>Identify questions that can be answered using spreadsheet data</p> <p>Explain what an item of data is in a spreadsheet</p> <p>Explain how the data type determines how a spreadsheet can process the data</p> <p>Outline that there are different software tools to work with data</p> <p>Explain that formulas can be used to produce calculated data</p> |
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|                   |   |   |   | Suggest real-world applications for branching databases  |  | Outline how 'AND' and 'OR' can be used to refine data selection<br>Explain that computer programs can be used to compare data visually<br>Explain that we present information to communicate a message   | Recognise cells can be linked<br>Explain why data should be organised in a spreadsheet<br>Recognise that a cell's value automatically updates when the value in a linked cell is changed<br>Evaluate results in comparison to the question asked                  |
| <b>Vocabulary</b> | <b>Programming</b><br>move, forwards, backwards, turn, commands, stop, go<br><b>Creating media- digital painting</b><br>paint program, tool, paintbrush,undo do | <b>Programming A-moving a robot</b><br>Forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, turn, plan, algorithm, program, route<br><b>Data and information- grouping data</b><br>object, label, group, search, image, property, label, colour, size, shape, | <b>Creating media- Making Music</b><br>quiet, loud, feelings, emotions, pattern, rhythm, pulse/beat, pitch, tempo, notes, instrument, open, edit<br><b>Data and information- pictograms</b><br>organise, data, object, tally chart, votes, total, pictogram, enter, data, tally chart, compare, explain, attribute, group, conclusion, pictogram, block diagram | <b>Creating media- stop-frame animation</b><br>animation, flip book, stop-frame animation, frame, sequence, image, photograph, Setting, character, events, onion skinning, consistency, evaluation, delete, media, | <b>Creating media- audio production</b><br>audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, import, save, export, MP3, editing, | <b>Creating media- video production</b><br>video, audio, camera, talking head, panning, close up, microphone, lens, mid range, long shot, moving subject, side by side, high angle, low angle, normal angle, Static camera, zoom, pan, tilt, storyboard, filming, review, import, split, | <b>Creating media- web page creation</b><br>website, web page, browser, media, Hypertext Markup Language (HTML), logo, layout, header, purpose, copyright, fair use, home page, preview, evaluate, device, Google Sites, breadcrumb trail, navigation, hyperlink, |

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|                      |  | value, label, data set, more, less, most, fewest, the same, least                          |  | import, transition<br><b><u>Data and information-branching databases</u></b><br>attribute, value, questions, table, objects, branching database, database, objects, equal, even, separate, structure, compare, order, organise, selecting, information, decision tree | evaluate, feedback<br><b><u>Data and information-data logging</u></b><br>data, table, layout, input device, sensor, data logger, logging, data point, interval, analyse, data set, import, export, logged, collection, review, conclusion | trim, clip, edit, reshoot, delete, trim, reorder, export, evaluate, share<br><b><u>Data and information-flat-file databases</u></b><br>database, data, information, record, field, sort, order, group, record, search, value, criteria, graph, chart, axis, compare, filter, chart, presentation | subpage, implication, external link, embed<br><b><u>Data and information - Introduction to Spreadsheets</u></b><br>data, collecting, table, structure, spreadsheet, cell, cell reference, data item, format, formula, calculation, data, spreadsheet, input, output, cells, calculate, operation, formula, range, duplicate, sigma, propose, question, data set, organised, chart, evaluate, results, comparison, software, tools |
| <b>Key Questions</b> | <b><u>Programming</u></b><br>How can you make indi move in different ways? | <b><u>Programming A-moving a robot</u></b><br>What are commands?<br>What is a sequence and | <b><u>Creating media- Making Music</u></b><br>How does music make us feel? | <b><u>Creating media-stop-frame animation</u></b><br><br><b><u>Data and information-</u></b>  | <b><u>Creating media-audio production</u></b>   | <b><u>Creating media-video production</u></b><br><br><b><u>Data and information-</u></b>   | <b><u>Creating media-web page creation</u></b><br><br><b><u>Data and information -</u></b>  |

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|  | <p>What do the colours on the mats make indi do?</p> <p><b><u>Creating media- digital painting</u></b></p> <p>How can I move the paintbrush?<br/>How can I make a picture on a computer?</p> | <p>how can I make one?<br/>How can I find a solution to a problem?</p> <p><b><u>Data and information- grouping data</u></b></p> <p>How can objects be described?<br/>How can groups of objects be compared?</p> | <p>How can my music be played in different ways?<br/>How can I refine my pattern on a computer?</p> <p><b><u>Data and information- pictograms</u></b></p> <p>How can objects be represented?<br/>How can objects be organised by attribute?</p> | <p><b><u>branching databases</u></b></p> | <p><b><u>Data and information- data logging</u></b></p> | <p><b><u>flat-file databases</u></b></p> | <p><b><u>Introduction to Spreadsheets</u></b></p> |
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