**Curriculum Overview for Computing 22/23** ***What we teach, when we teach it***

| EYFS | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
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| Overview | Digital safety | Computer discovery | Mouse and keyboard skills<br><br>**Laptops** | Early programming | Digital photos and videos | Digital art and design |
| Key Concepts: | Digital Literacy | Information Technology | Information Technology | Computer Science | Information Technology | Information Technology |
| Knowledge - what will our children learn?<br><br>Skills - what do we want our children to do?<br>) | Discuss what to do when you see something different on a computer or online.<br><br>Discuss who to go to for help. | Discuss and label the components of a computer.<br><br>Discuss what should be done if a computer needs repairing.<br><br>Use a mouse to control a computer (large cursor). | Move mouse, left/right click, drag and drop.<br><br>Find letters on keyboard and begin touch typing with home row keys | Discuss how things work.<br><br>Discuss what a sequence is.<br><br>Create a simple sequence of instructions for other children or beebots to complete. | Understand the difference between a photo and a video.<br><br>Discuss what can be used to take photos, where we can get photos and how we can share them.<br><br>Discuss where photos and videos go once they have been taken. | Use simple tools and techniques competently and appropriately.<br><br>Select appropriate resources and adapt them where necessary.<br><br>Explore how colours can be changed.<br><br>Choose particular colours to use for a purpose. |
| Enrichment | **Coding Day/Week**<br><br>**19th-25th** | | **https://www.childnet.com/resources/digiduck-stories/ (Link to DigiDuck virtual stories)**<br><br>**Safer Internet Day 7th February 2023** | | | |

| Year 1 | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
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| Overview | Digital Safety | Mouse and Keyboard Skills<br><br>**Laptops** | Introduce Programming | Digital Art | Text and Image | Comic Creation and Music Creation |
| Key Concepts: | Digital Literacy | Information Technology | Computer Science | Information Technology | Information Technology | Information Technology |
| Prior Learning | Children will have an understanding of when and who to ask for help when online. | Children will have an understanding of the components of a computer. They will have begun to use a mouse to click and drag. They will also have begun to use a keyboard to touch type. | Children will understand what a sequence is and have experience of creating a simple sequence. | Children will have used simple tools, explored how colours change and use particular colours for purpose. | Children will understand the difference between photos and videos.<br>Children will know how to take photos and where they are stored. | Not previously covered. |
| Knowledge - what will our children learn?<br><br>Skills - what do we want our children to do? | Keep personal information private.<br><br>Understand why websites want personal information.<br><br>Identify when and where to go for help when concerned. | Move cursor and left click to select.<br><br>Click and drag to move items.<br><br>Find letters on a keyboard and begin touch typing. | Understand sequence and algorithms.<br>Sequence instructions (commands) to achieve an objective.<br><br>Use distances in commands.<br><br>Predict, write, execute and debug a simple program. | Change the colour of individual pixels to accurately recreate basic artwork.<br><br>Make changes where required.<br><br>Change the colour of individual pixels to accurately recreate detailed artwork. | Add, move and resize images. Add text and adjust size and placement.<br><br>Add, resize and place images on a page then add and position text to label and describe images.<br><br>Use word banks to write sentences about images. | Add, resize and organise colour or picture backgrounds.<br>Add, resize, organise characters/objects to different panels.<br>Add narration using text and direct speech using speech bubbles.<br>Create a rhythm using a pattern of beats.<br>Create digital sounds using patterns and shapes.<br>Create a simple melody using patterns and adjust tempo. |
| Enrichment | **)Coding Day/Week19th-25th** | VR Sets | **Safer Internet Day 7th February 2023**<br><br>**https://www.childnet.com/resources/digiduck-stories/ (Link to DigiDuck virtual stories** | | | |

| Year 2 | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
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| Overview | Recognises Uses of IT and Digital Safety. | Develop Programming | Introduce Data Handling | Programming with Scratch Jr. | Introduction to Animation and Digital Art. | E-Book Creation |
| Key Concepts: | Digital Literacy | Computer Science | Information Technology | Computer Science | Information Technology | Information Technology |
| Prior Learning | Children will have covered aspects of personal information such as why websites may want personal information and why it is important to keep it private. Children have also covered where and when to go for help if concerned. | Children will understand what an algorithm is, how to sequence instructions and how to write a program. Children will also be able to debug a simple program. | Not previously covered. | Children will have covered programming however, this will be the first time they use Scratch Jr. | Children will have covered how to change the colour of individual pixels to recreate both basic and detailed artwork. | Children will have created a comic book adding backgrounds, characters and speech bubbles. |
| Knowledge - what will our | Understand what makes a | Create and debug simple programs by selecting | Understand what data is and collect it as a tally. | Program movements. | Add a background and objects to a frame, | Add a book cover with title, author, colour and |

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| children learn?<br><br>Skills - | computer a computer.<br><br>Understand how computers store and follow instructions.<br><br>Spot digital technology in school.<br><br>Understand how different technology helps us.<br><br>What are the dangers of sharing photos online?<br><br>People online are not always who they say they are.<br><br>Trusting information online.<br><br>Using the Internet responsibly and being respectful. | code blocks, placing them in the correct sequence and executing a program.<br><br>Use logical reasoning to predict the behaviour of simple programs.<br><br>Simplify a program by using a loop. | Use software to label a pictogram and add data to each column.<br><br>Edit a table with correct titles and numbers.<br><br>Use software to create a bar chart/pie chart/line chart suitable for the data.<br><br>Interpret a pictogram/bar chart/line chart | Program outputs for audio or text.<br><br>Find errors in a program (debug).<br><br>Program inputs (touch or clicking)<br><br>Program selection/conditions (if statements). | including text.<br><br>Copy/clone a frame and move objects to create an animation. Plus flip an object.<br><br>Create screen-recording animation.<br><br>Create stop-motion animation with photos. | image.<br><br>Add multiple pages based on a theme.<br><br>Add text on different pages.<br><br>Add images on different pages to match the theme/text.<br><br>Add voice recordings to match the text and theme. |
| Enrichment | **Coding Day/Week**<br><br>**19th-25th** | **VR Sets** | **Safer Internet Day 7th February 2023 https://www.childnet.com/resources/digiduck-stories/ (Link to DigiDuck virtual stories)** | | | |

| Year 3 | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
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| Overview | Digital Safety | Programming in Scratch | Digital Art | Music Creation | Document Editing and Creation | Programming in Kodu |
| Key Concepts: | Digital Literacy | Computer Science | Information Technology | Information Technology | Information Technology | Computer Science |
| Prior Learning | Children will have covered the dangers of being online, how to use the internet safely and how to keep personal information safe. | Children will be able to program movement, outputs, inputs and using 'if' statements. | Children will be able to change the colour of individual pixels. Children will have learnt how to insert a background or text into a frame and how to copy this. | Children will have created rhythms, digital sounds and simple melodies using different patterns. | Not previously covered. | Children have not previously used this program. Children will have programmed using Scratch. |
| Knowledge - what will our | Understand what to do if something upsets you | Design, write and debug programs that accomplish | Use various lines and fill tools plus copy/paste and | Create ascending and descending scales. | Copy and Paste text and | Create a 3D place using various design tools. |

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| children learn?<br><br>Skills - what will they be able to do? | online.<br><br>Understand why and how people can be nasty online.<br><br>Describe the term 'sharing online' and why we need to get permission to share photos and videos of other people.<br><br>Understand why people pretend to be someone else online.<br><br>Understand why we only talk to people we know in the real world, when online.<br><br>Understand why we should not always trust what we read online and how to check<br><br>Understand the importance of being kind in the real world and also online. | specific goals. (Including outputs)<br><br>Use repetition in programs.<br><br>Work with various forms of inputs; keyboard, mouse and touch screen.<br><br>Write programs to simulate physical systems. | rotation to create pattern effects.<br><br>Use shapes, fill, copy/paste, zoom and flip to create reflective symmetry effects.<br><br>Use stamps, copy/paste, layers and multiple frames to create animated GIF computer graphics. | Add chords evenly across the scales.<br><br>Add arpeggios and melodies.<br><br>Add a steady and even rhythm.<br><br>Use sampled sounds to create an effective mix.<br><br>Build beats, melody (tones) and effects. | images.<br><br>Find and replace words.<br><br>Format text for a purpose.<br><br>Add bullet points to make lists.<br><br>Experiment with keyboard shortcuts. | Write a program to control using keyboard inputs.<br><br>Write a program with conditions (selection).<br><br>Write a program with variables |
| Enrichment | **Lego Wedo 2.0 Coding Day/Week 19th-25th** | **VR Sets** | **https://www.childnet.com/resources/digiduck-stories/ (Link to DigiDuck virtual stories)**<br><br>**Safer Internet Day 7th February 2023** | | | |

| Year 4 | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
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| Overview | Digital Safety | Programming in Scratch | Animation | Data Handling | Internet research | Video Editing |
| Key Concepts: | Digital Literacy | Computer Science | Information Technology | Information Technology | Information Technology | Information Technology |
| Prior Learning | Children will have covered what it means to share information online, why we should only talk to people we know in the real world and understand the importance of being kind in the real world as well as online. Children will | Children will have written, and debugged programs in Scratch. They will have used repetition and written programmes to stimulate physical devices. Children will have also worked with a variety of inputs to help with their programming. | Children will have covered how to copy/clone a frame to create an animation. They will have created a screen recording animation and a stop-motion animation (y2). | Not previously covered. | Not previously covered. | Children will have covered adding a variety of features such as background, characters and objects.<br><br>No prior learning for adding audio or clips. |

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| | also know what to do if something upsets them. | | | | | |
| Knowledge - what will our children learn?<br>Skills - what will they be able to do? | Understand what to do if something upsets you online.<br><br>Understand why and how people can be nasty online.<br><br>Describe the term 'sharing online' and why we need to get permission to share photos and videos of other people.<br><br>Understand why people pretend to be someone else online.<br><br>Understand why we only talk to people we know in the real world, when online.<br>Understand the importance of being kind in the real world and also online. | Use sequence, selection, and repetition in programs.<br><br>Work with variables and various forms of input and output.<br><br>Debug programs that accomplish goals.<br><br>Work with variables and conditions. | Create a stop-motion video by duplicating slides that include backgrounds and shapes.<br><br>Create animation using transition and animation effects (morph, motion paths, pulse etc), including taking and editing a screenshot.<br><br>Animate individual elements of objects.<br><br>Create animated GIF files by animating pixels.<br>Understand why we should not always trust what we read online and how to check | Change the appearance of cells in a spreadsheet (fill colour and border) then add and align text.<br><br>Find and add data to a spreadsheet, resize cells and use the software to create a suitable chart with a title. | Use search technologies to find specific pieces of information.<br><br>Understand features of an Internet Browser.<br><br>Reference the correct source of information.<br><br>Be discerning in evaluating digital content.<br><br>Check the internet for fake news by cross-referencing facts. | Add scene images.<br><br>Add scripted voiceover audio, adjust the volume and crop clips (including splitting a clip).<br><br>Add more clips and use transition effects.<br><br>Add titles.<br><br>Use elements such as shapes.<br><br>Add background music and adjust the volume.<br><br>Export a project. |
| Enrichment | **Coding Day/Week**<br><br>**19th-25th** | **VR Sets** | **Safer Internet Day 7th February 2023** | | | |

| Year 5 | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
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| Overview | Digital Safety, Computer Networks and the Internet | Programming in Scratch | Text-based Programming | Music Creation | Data Handling | Physical Devices |
| Key Concepts: | Digital Literacy | Computer Science | Computer Science | Information Technology | Information Technology | Computer Science |
| Prior Learning | Children will have covered what it means to share information online, why we should only talk to people we know in the real world and understand the importance of being kind in the real world as well as online. Children will | Children will have used sequence, selection and repetition in programmes. They will have used a variety of variables and can debug programs with specific goals. | Not previously covered. | Children will have covered how to create ascending and descending scales, how to add chords and how to use sampled sounds Children will have learnt to build beats, melodies and effects. | Children will have covered what data is, how to collect data as a tally, how to create various charts and how to interpret charts (year 2). | Children will have discussed and used a variety of inputs and outputs.They will also have experience of debugging programs. |

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| | also know what to do if something upsets them. | | | | | |
| Knowledge - what will our children learn?<br>Skills - what will they be able to do? | Keep personal information private.<br><br>Respect and protect against online bullies.<br><br>Understand the consequences of sharing photos/videos online.<br><br>Understand the term digital footprint.<br><br>How can we check if online content is trustworthy?<br><br>How and where and who can we report concerns we have to.<br><br>Understand Computer Networks, Internet and Cloud Computing and how they help us.<br><br>What is email and how can we use it safely?<br><br>Understand how and why we collaborate online (including blogging). | Program inputs, selection (conditions) and sensing for interaction, data variables for scoring and a game timer.<br><br>Program distance sensing and movement.<br><br>Program inputs, outputs, loops, selection (conditions), sensing and variables.<br><br>Program list variables that choose randomly. | Change the variables of text-based commands.<br><br>Write text-based commands accurately and use fill effects, stamps and functions.<br><br>Write text-based commands to program digital art.<br><br>Write text commands/functions to program keyboard inputs in a game. (Not compatible with iPad/tablet unless using physical keyboard)<br><br>Programming a Logo turtle to move and use pen<br><br>Use co-ordinates in with a Logo turtle.<br><br>Print labels in Logo.<br><br>Program a loop (repetition) and shapes in Logo Turtle.<br><br>Program colours in Logo turtle.<br><br>Program variables in Logo turtle. | Layer tracks using sounds and effects.<br><br>Create effective instrument tracks.<br><br>Edit tracks and effectively adjust volume and add effects | Select and use non-adjacent cells plus resize multiple cell widths and copy/paste cells.<br><br>Use formulae to find totals, averages and maximum/minimum numbers.<br><br>Find data and create a spreadsheet to suit it.<br><br>Search a database for specific information. | Understand that computers use physical inputs and outputs and give examples.<br><br>Program physical inputs, outputs (e.g program LED lights) and random variables.<br><br>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems. |

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| Enrichment | **Coding Day/Week**<br>**19th-25th**<br>**Photography-Afterschool Club-5/6** | VR Sets | **Safer Internet Day 7th February 2023** | | | Microbits |

| **Year 6** | **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
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| Overview | Digital Safety and Cyberbullying | Programming in Scratch | Web Design | Computers- Past, Present and Future | Programming in Python | HTML |
| Key Concepts: | Digital Literacy | Computer Science | Information Technology | Information Technology | Computer Science | Information Technology |
| Prior Learning | Children have covered how to keep personal | Children will have covered programming inputs, | Children will have covered how to add text and | Not previously covered. | Children have not previously used the Python program. | Not previously covered. |

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| | information private, how to protect against online bullies, the consequences of sharing photos/videos online and what a digital footprint is. Children should understand how to check if online content is trustworthy, understand computer networks, understand what email is, how it's used and how/ why we collaborate online. | outputs and different variables including sensing variables. | images to offline programs.<br><br>No prior learning of adding to a website. | | They will have programmed using Scratch and Kodu. | Children will have learnt how to add hyperlinks to a website (Web Design unit). |
| Knowledge - what will our children learn?<br>Skills - what will they be able to do? | Keep personal information private.<br><br>Respect and protect against online bullies.<br><br>Understand the consequences of sharing photos/videos online.<br><br>Understand the term digital footprint.<br><br>How can we check if online content is trustworthy?<br><br>How, where and who can we report concerns we have to.<br><br>Use suitable usernames and passwords for online accounts. | Program keyboard/touch screen inputs, selection (conditions), loops and random variables for unpredictability (operators).<br><br>Program inputs, conditions, sensing, random variables, operators for direction and data variables for scoring.<br><br>Use inputs, conditions, loops, sensing, costume changes and broadcasts.<br><br>Work with multiple sprites to send broadcast messages between them. | Create a static homepage.<br><br>Choose a suitable theme for your website.<br><br>Change the site identity to a suitable title, tagline and website icon.<br><br>Upload a suitable header and/or background image.<br><br>Adjust the website sidebar and add suitable widgets.<br><br>Add text and images to a page and edit them.<br><br>Add multiple pages and edit the navigation, including sub-menus.<br><br>Provide constructive feedback for your classmates' websites. | Understand how technology has changed over time. Combine text and images to present ideas.<br><br>Understand the impact (positive/negative) technological changes have on society.<br><br>Predict how technology will change in the future. | Use the PRINT command for text.<br>Program a simple calculator in Python.<br><br>Program loops to repeat text.<br><br>Program interactive inputs.<br><br>Program a trivia chatbot using 'send message' functions | Add and align text and change colour.<br>Program background colour.<br><br>Add and align images.<br><br>Add hyperlinks to other websites.<br><br>Add an iframe (such as a Google Map) and adjust the height and width. |
| Enrichment | **Coding Day/Week**<br><br>**19th-25th** | VR Sets | **Safer Internet Day 7th February 2023** | | | |

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| | **Photography- Afterschool Club-5/6** | | | | | |

**Terminology**

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| **Algorithm** | An unambiguous procedure or precise step-by-step guide to solve a problem or achieve a particular objective. | **Program** | A stored set of instructions encoded in a language understood by the computer that does some form of computation, processing input and/or stored data to generate output. |
| **Computer networks** | The computers and the connecting hardware (wifi access points, cables, fibres, switches and routers) that make it possible to transfer data | **Repetition** | A programming construct in which one or more instructions are repeated, perhaps a certain number of times, until a condition is satisfied |

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| | using an agreed method. | | or until the program is stopped. |
| **Control** | Using computers to move or otherwise change ‘physical’ systems. The computer can be hidden inside the system or connected to it. | **Search** | To identify data that satisfies one or more conditions, such as web pages containing supplied keywords, or files on a computer with certain properties. |
| **Data** | A structured set of numbers, representing digitised text, images, sound or video, which can be processed or transmitted by a computer. | **Selection** | A programming construct in which the instructions that are executed are determined by whether a particular condition is met. |
| **Debug** | To detect and correct the errors in a computer program. | **Sequence** | To place programming instructions in order, with each executed one after the other. |
| **Digital content** | Any media created, edited or viewed on a computer, such as text (including hypertext of a web page), images, sound, video (including animation), or virtual environments, and combinations of these (i.e. multimedia). | **Services** | Programs running on computers, typically those connected to the internet, which provide functionality in response to requests; for example, to transmit a web page, deliver an email or allow a text, voice or video conversation. |
| **Information** | The meaning or interpretation given to a set of data by its users, or which results from data being processed. | **Simulation** | Using a computer to model the state and behaviour of real-world (or imaginary) systems, including physical and social systems; an integral part of most computer games. |
| **Input** | Data provided to a computer system, such as via a keyboard, mouse, microphone, camera or physical sensors. | **Software** | Computer programs, including both application software (such as office programs, web browsers, media editors and games) and the computer operating system. The term also applies to ‘apps’ running |

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| | | | on mobile devices and to web-based services. |
| **Internet** | The global collection of computer networks and their connections, all using shared protocols to communicate. | **Variables** | A way in which computer programs can store, retrieve or change simple data, such as a score, the time left, or the user's name. |
| **Logical reasoning** | A systematic approach to solving problems or deducing information using a set of universally applicable and totally reliable rules. | **World wide web** | A service provided by computers connected to the internet (web servers), in which pages of hypertext (web pages) are transmitted to users; the pages typically include links to other web pages and may be generated by programs automatically. |
| **Output** | The information produced by a computer system for its user, typically on a screen, through speakers or on a printer, but possibly through the control of motors in physical systems. | | |