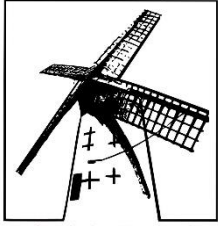


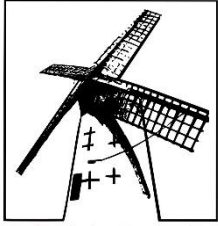
# Skills & Knowledge Progression: Computing

Year group	Computer Science	Information Technology	Digital Literacy	E-Safety
<b>Nursery (F1)</b>	<ul style="list-style-type: none"> <li>• Begin to create a basic sequence using a programmable toy e.g. Code-a-pillar</li> <li>• Begin to follow a set of instructions to complete a task.</li> </ul>	<ul style="list-style-type: none"> <li>• Explore and identify different types of technology; through role play, the interactive whiteboard, iPads and programmable toys.</li> <li>• Identify and understand the purpose of technology in the environment e.g. pelican crossing, self-serve scanner in supermarkets.</li> <li>• With support, begin to identify technology for a purpose.</li> </ul>	<ul style="list-style-type: none"> <li>• Know that information can be retrieved from technological devices and the internet.</li> <li>• Understand directional symbols when using programmable toys (forwards, backwards, turn, stop).</li> </ul>	<ul style="list-style-type: none"> <li>• Understand the need to keep safe when using IT;</li> <li>• Know that the internet can be fun and exciting, but that we follow rules to keep safe.</li> <li>• Know that they must ask an adult before using the internet/accessing games/websites.</li> <li>• Know that adults can help us to use the internet safely.</li> </ul>
<b>Reception (F2)</b>	<ul style="list-style-type: none"> <li>• Create a basic sequence using programmable toys e.g. Bee-Bot.</li> <li>• Follow a set of instructions to complete a task.</li> <li>• Encourage children to speculate on why things happen or how things work.</li> </ul>	<ul style="list-style-type: none"> <li>• Select and use technology for a purpose.</li> <li>• Recognise that a range of technology is used at home and in school.</li> <li>• Use technology to support independent play i.e. Talking Pegs/Tins to access Continuous Provision areas.</li> </ul>	<ul style="list-style-type: none"> <li>• Understand that different icons can cause things to happen in a computer program.</li> <li>• Develop understanding of directional symbols when using programmable toys, computer programs and apps.</li> </ul>	<ul style="list-style-type: none"> <li>• Understand the need to keep safe when using IT;</li> <li>• Identify ways that we use the internet i.e. watch TV shows/videos, play games, find out information and help us learn at home.</li> <li>• Know that they must ask an adult before using the internet/accessing games/websites.</li> <li>• Know that adults can help us to use the internet safely.</li> <li>• Know that they must not click/access unfamiliar programs or icons.</li> <li>• Know that personal information must not be shared.</li> </ul>



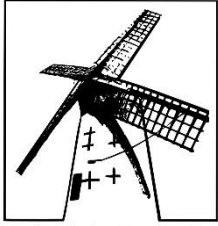
# Skills & Knowledge Progression: Computing

Year group	Computer Science	Information Technology	Digital Literacy	E-Safety
Year 1	<ul style="list-style-type: none"> <li>Follow and complete a simple set of instructions;</li> <li>Children can explain that an algorithm is a set of instructions to complete a task;</li> <li>Compare the effects of adhering strictly to instructions to completing tasks without complete instructions;</li> <li>Follow and create simple instructions on the computer;</li> <li>To consider how the order of instructions affects the result;</li> <li>Predict the outcome of a command on a device;</li> <li>Match a command to an outcome;</li> <li>Run a command on a device</li> <li>Explain what a program should do</li> <li>Choose the order of commands in a sequence</li> </ul>	<ul style="list-style-type: none"> <li>Identify examples of technology in school, at home and in the wider area;</li> <li>Know what a spreadsheet program looks like;</li> <li>Enter data into spreadsheet cells;</li> <li>Add clipart images to cells; Use the lock, move cell, speak and count functions in a spreadsheet.</li> </ul>	<ul style="list-style-type: none"> <li>To understand the functionality of the direction keys</li> <li>Find examples of where technology is used;</li> <li>Find examples of technology outside school.</li> </ul>	<ul style="list-style-type: none"> <li>Understand the need to keep safe when using IT;</li> <li>Know that they should close lid of laptop or turn off the screen if they come across inappropriate images or content;</li> <li>Recognise that information found or transmitted online can be seen by others - e.g. images found online can be seen by others too &amp; search strings can be seen by those running the search engine;</li> <li>Describe what personal information is and what things we should not share with strangers.</li> </ul>



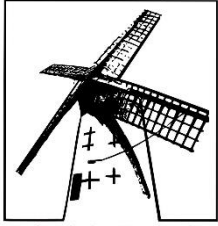
# Skills & Knowledge Progression: Computing

Year group	Computer Science	Information Technology	Digital Literacy	E-Safety
Year 2	<ul style="list-style-type: none"> <li>Control a toy by inputting instructions;</li> <li>Record a sequence of instructions as an algorithm;</li> <li>Predict how a program will work;</li> <li>Program a toy to follow an algorithm;</li> <li>Debug a program.</li> </ul>	<ul style="list-style-type: none"> <li>Create illustrations for a story;</li> <li>Use different painting tools to improve illustrations;</li> <li>Save and open work again later;</li> <li>Combine a number of illustrations to create an e-book.</li> <li>Use sound recording equipment to record sounds</li> <li>Develop skills in saving and storing sounds on the computer</li> <li>Understand how a talking book differs from a paper-based</li> <li>share recordings with an audience.</li> </ul>	<ul style="list-style-type: none"> <li>Use 'search' to find particular things;</li> <li>Use search tools to help cut down the number of search results;</li> <li>Use a search engine to search the internet;</li> <li>Tell an adult if our results include something that shocks or upsets us;</li> <li>Use what we have found out to create a leaflet.</li> <li>Talk to others online in a polite and safe way;</li> <li>Explain how our time online leaves a trail;</li> <li>Keep our personal information safe online;</li> <li>Use email to communicate with other people;</li> <li>Open and send an email;</li> <li>Use Purple Mash to share work and look at other children's work.</li> <li>Explain how using technology is different to using pen and paper;</li> <li>Develop collaboration skills as they work together in a group;</li> </ul>	<ul style="list-style-type: none"> <li>Explain what type of information is personal to us and ways we can keep it safe;</li> <li>Explore the idea of a digital footprint and what data may be involved;</li> <li>Describe ways a website/app may encourage children to use it more often;</li> <li>Recognise that online behaviour and offline behaviour should not be different and the importance of being kind to one another;</li> <li>Explore what to do if children are upset or shocked by somebody else online.</li> </ul>



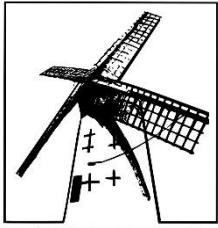
# Skills & Knowledge Progression: Computing

Year group	Computer Science	Information Technology	Digital Literacy	E-Safety
Year 3	<ul style="list-style-type: none"> <li>• Detect and correct (debug) errors in more code.</li> <li>• Describe carefully what happens in computer games;</li> <li>• Understand that computer games are made from a set of algorithms that the computer follows;</li> <li>• Use logical reasoning to make predictions of what a program will do;</li> <li>• Test your predictions;</li> <li>• Think about how we should use computer games safely and to balance the time we play them with other activities</li> <li>• have a clear understanding of algorithms as                             <ul style="list-style-type: none"> <li>• sequences of instructions</li> <li>• convert simple algorithms to programs</li> <li>• predict what a simple program will do</li> <li>• spot and fix (debug) errors in their programs.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Choose a subject and compose a photograph;</li> <li>• Use a digital camera (or a camera app) to take a photograph;</li> <li>• Review captured images and decide whether to re-take or keep the image;</li> <li>• Edit and enhance images using software and online tools;</li> <li>• Share our best images in a portfolio.</li> <li>• Sort and classify a group of items by answering questions</li> <li>• collect data using tick charts or tally charts</li> <li>• use simple charting software to produce pictograms and other basic charts</li> <li>• record information on a digital map;</li> <li>• Enter data into the cells of a spreadsheet.</li> </ul>	<ul style="list-style-type: none"> <li>• Use emails to communicate- opening, composing and sending them;</li> <li>• Create and add attachments to emails;</li> <li>• Open and listen to audio files;</li> <li>• Explain the two parts of an email address;</li> <li>• Be wary of unexpected emails and know what to do if you receive one.</li> <li>• Collaborate on the activity;</li> <li>• Improve research skills through searching the internet;</li> <li>• Build a presentation based on researched information</li> <li>• Present what we have found out in front of others.</li> </ul>	<ul style="list-style-type: none"> <li>• Explore how we can be e- sponsible online in the way we act and the actions we take;</li> <li>• Identify ads in a set of search results and understand why they appear there;</li> <li>• Begin consider the choices we can make in our online behaviour, just as we can in our offline behaviour;</li> <li>• Describe some of the consequences that our online behaviour can have;</li> <li>• Understand how to use key search terms to search the internet safely.</li> </ul>



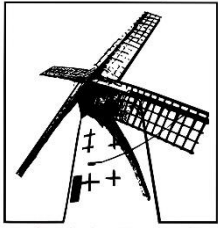
# Skills & Knowledge Progression: Computing

Year group	Computer Science	Information Technology	Digital Literacy	E-Safety
Year 4	<ul style="list-style-type: none"> <li>• Use logical reasoning to explain how simple algorithms work;</li> <li>• Spot and debug mistakes in an algorithm;</li> <li>• Understand how to design and edit projects in Scratch;</li> <li>• Write a program in Scratch to create the animation;</li> <li>• Use different strategies to find and fix errors in code;</li> </ul>	<ul style="list-style-type: none"> <li>• Begin to understand how to design a survey;</li> <li>• Use the web to help collect data;</li> <li>• Analyse data using graphs and charts;</li> <li>• Interpret survey results and present our findings;</li> <li>• Begin to understand some of the ethical and legal aspects of collecting data;</li> <li>• Design and make an on-screen prototype of a computer-controlled toy;</li> <li>• Understand different forms of input and output (such as sensors, switches, motors, lights and speakers);</li> <li>• Describe the internet as a network of networks.</li> </ul>	<ul style="list-style-type: none"> <li>• Begin to understand how email works;</li> <li>• Use different tools and skills when composing an email;</li> <li>• Begin to understand the correct 'netiquette' when communicating with different people, for different reasons;</li> <li>• Work collaboratively with a remote partner;</li> <li>• Video conference and share work remotely.</li> <li>• Describe how information is shared across the internet</li> <li>• Explain why a network needs protecting</li> <li>• Describe how networked devices join a network</li> <li>• Explain that the internet is used to provide many services;</li> <li>• I can recognise that the World Wide Web contains websites and web pages;</li> <li>• Explain the types of media that can be shared on the WWW;</li> <li>• Describe where websites are stored when uploaded to the WWW;</li> <li>• Describe how to access websites on the WWW.</li> </ul>	<ul style="list-style-type: none"> <li>• Analyse information to make a judgement about probable accuracy, and understand why it is important to make careful decisions before posting online.</li> <li>• Explain what is meant by fake news, e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't.</li> <li>• Describe ways of identifying when online content has been commercially sponsored or boosted, (e.g. by commercial companies or by vloggers, content creators, or influencers).</li> <li>• Describe how fake news may affect someone's emotions and behaviour, and explain why this may be harmful.</li> </ul>



# Skills & Knowledge Progression: Computing

Year group	Computer Science	Information Technology	Digital Literacy	E-Safety
Year 5	<ul style="list-style-type: none"> <li>• Use selection and repetition in a game;</li> <li>• Understand and use variables;</li> <li>• Recognise the importance of user interface design;</li> <li>• Consider user input and outputs;</li> <li>• Detect and correct (debug) errors in code;</li> <li>• Use algorithms to create 'turtle graphics';</li> <li>• Code up a simple web page using HTML;</li> <li>• Use html tags for elementary mark up;</li> <li>• Use hyperlinks to connect ideas and sources</li> </ul>	<ul style="list-style-type: none"> <li>• Create a storyboard to plan what to record and which techniques to use;</li> <li>• Use a digital device to record video and audio;</li> <li>• Use different camera angles, techniques and tools when filming;</li> <li>• Use different programs and apps to edit recorded video;</li> <li>• Use computer-based data logging to automate the recording of data;</li> <li>• Use spreadsheets to create charts;</li> <li>• Analyse data, explore inconsistencies in data and make predictions;</li> <li>• Present findings and predictions to each other in;</li> <li>• Understand some technical aspects of how the Internet makes the web possible;</li> <li>• Use tools and techniques to create vector graphics;</li> <li>• Experiment with tools such as duplicate, layer, group and ungroup, line weight, gradient and colour</li> </ul>	<ul style="list-style-type: none"> <li>• Develop an appreciation of the links between geometry and art;</li> <li>• Develop an awareness of computer-generated art;</li> <li>• Understand the difference between digital and analogue techniques for measuring the weather;</li> <li>• Understand some of the risks in using the web</li> </ul>	<ul style="list-style-type: none"> <li>• Think through the consequences of actions when using digital technology (both short- and long term)</li> <li>• Discuss the nature of privacy online and the potential advantages and disadvantages of handing over personal data to large companies</li> <li>• Know how to report inappropriate content online (e.g. to ChildLine or CEOP);</li> <li>• Understand how once something is shared online, we lose control over it.</li> <li>• Identify what could be phishing messages/links and what handed over information could be used for.</li> </ul>



# Skills & Knowledge Progression: Computing

Year group	Computer Science	Information Technology	Digital Literacy	E-Safety
Year 6	<ul style="list-style-type: none"> <li>• Detect and correct (debug) errors in more complex code.</li> <li>• Use sequence, selection, repetition and variables to create a computer program;</li> <li>• Use iterative development techniques to improve a game to develop your code and game.</li> </ul>	<ul style="list-style-type: none"> <li>• Understand the work of architects, designers and engineers;</li> <li>• Use CAD (computer aided design) tools;</li> <li>• Explore and experiment with 3D environments and in three dimensions;</li> <li>• Design a 3D object that can be made with a 3D printer;</li> <li>• Explain how semaphore and Morse code can be used to send messages;</li> <li>• Encrypt and decrypt messages using simple ciphers;</li> <li>• Use search engine tools effectively to find specific information.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify if a web page is encrypted and how encryption works on the web;</li> <li>• Explain how search results are ranked and why the order of results is important;</li> <li>• Evaluate which online communication tools are most suitable for particular purposes;</li> <li>• Choose when to and when not to share information online based on the platform or site being used.</li> </ul>	<ul style="list-style-type: none"> <li>• Describe what makes a strong password;</li> <li>• Explain how passwords help to protect our data;</li> <li>• Understand basic principle of copyright and the how online content has been created by somebody who could own it;</li> <li>• Explore different types of content covered by creative content licenses, for example.</li> <li>• Focus on a particular e-safety message and create a website for younger children;</li> <li>• Know to report inappropriate content to CEOP.</li> </ul>