



# Marlborough Primary Academy School

## Progression of Skills and Knowledge for Computing

### Programming and Coding

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> <li>Show skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movement or new images.</li> <li>Complete a simple program on a computer</li> </ul>	<ul style="list-style-type: none"> <li>To give precise instructions.</li> <li>To combine start up and input events.</li> <li>Explore what happens when a sequence of instructions is given.</li> </ul>	<ul style="list-style-type: none"> <li>To write code that responds to inputs from the keyboard.</li> <li>Program buttons to make objects move.</li> <li>Improve/change sequences or commands.</li> </ul>	<ul style="list-style-type: none"> <li>Create simple animations and simulations using sequences of instructions.</li> <li>Use conditional statements within code (If...)</li> <li>Write code that controls a simple external circuit.</li> <li>Begin to look for errors in code to ensure its effectiveness.</li> </ul>	<ul style="list-style-type: none"> <li>Create simple code that uses variables</li> <li>Write code that includes repetition and loops.</li> <li>Debug own code</li> </ul>	<ul style="list-style-type: none"> <li>Create code that can change an objects speed</li> <li>Write code that can generate random numbers and use this in a simulation</li> <li>Confidently debug code</li> </ul>	<ul style="list-style-type: none"> <li>Use variables to create more complex outcomes</li> <li>Manipulate inputs to create useful outputs</li> <li>Use properly values and parameters to store information about objects</li> <li>Write and use code (Python) to control more complex external circuits.</li> </ul>
<b>Related National Curriculum Objectives in italics:</b>	<i>-Understanding what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions</i> <i>-Create and debug simple programs</i> <i>-Use logical reasoning to predict the behaviour of simple programs.</i> <i>Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</i>		<i>-Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.</i> <i>-Use sequence, selection and repetition in programs; work with variables and various forms of input and output.</i> <i>-Use logical reasoning to explain how some algorithms work and to detect and correct errors in algorithms and programs.</i> <i>-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.</i>			
Digital Literacy						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> <li>Select and use</li> </ul>	<ul style="list-style-type: none"> <li>Use a space bar,</li> </ul>	<ul style="list-style-type: none"> <li>Choose a suitable</li> </ul>	<ul style="list-style-type: none"> <li>To manipulate, organise,</li> </ul>	<ul style="list-style-type: none"> <li>To explore touch</li> </ul>	<ul style="list-style-type: none"> <li>Work independently</li> </ul>	<ul style="list-style-type: none"> <li>Work on increasing</li> </ul>



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<p>technology hardware to interact with age-appropriate computer software</p>	<p>backspace, delete, arrow keys, return</p> <ul style="list-style-type: none"> <li>To word process a short text</li> <li>Combine an image from the internet with text</li> <li>Talk about websites they have been on</li> <li>Recognise an email address</li> </ul>	<p>subject and collect some information</p> <ul style="list-style-type: none"> <li>To bring to use 2 hands to type</li> <li>To recognise common uses of technology beyond school</li> <li>To retrieve and store digital content</li> <li>Explore a website by clicking on arrows, menus and hyperlinks</li> <li>Open and select to reply to an email as a class</li> </ul>	<p>store and retrieve digital content</p> <ul style="list-style-type: none"> <li>Use a variety of font styles, colours and sizes</li> <li>Continue to practise typing with 2 hands. Change layout of slides when presenting information</li> <li>Insert picture or text from internet or personal files.</li> <li>Type in a URL to find a website</li> <li>Add websites to favourites list</li> <li>Use a search engine to find a range of media, e.g. images, texts</li> <li>Log into an email account, open, create and send an email</li> </ul>	<p>typing</p> <ul style="list-style-type: none"> <li>Use search engines effectively</li> <li>Confidently use a range of presentation approaches</li> <li>Use effective transitions between slides</li> <li>To evaluate digital content</li> <li>Download and save files from an email</li> <li>Email more than one person and reply to all</li> </ul>	<p>to create multi-slide presentations that combine text, images and speaker notes</p> <ul style="list-style-type: none"> <li>Embed sounds and moving graphics with a document</li> <li>Continue to practise touch typing</li> <li>Understand websites such as Wikipedia are made by users (link to e-safety)</li> </ul>	<p>words per minute using touch typing</p> <ul style="list-style-type: none"> <li>Research and present work independently ensuring reliability of information</li> <li>Make decisions about which software is best for the desired outcome</li> <li>Use their knowledge of domain names to aid their judgements of the validity of websites.</li> </ul>
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<p><b>Related National Curriculum Objectives in italics:</b></p>	<p><i>-Recognise common uses of information technology beyond school.</i></p> <p><i>-Use technology safely and respectfully, keeping personal information private; where to go for help and support when they have concerns about content or contact on the internet or other online technologies.</i></p>	<p><i>-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.</i></p> <p><i>-Understands 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.</i></p> <p><i>-Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</i></p>
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### Multimedia

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> <li>They select and use technology for particular purposes</li> </ul>	<ul style="list-style-type: none"> <li>Capture a short video</li> <li>Discuss which videos to keep and delete</li> </ul>	<ul style="list-style-type: none"> <li>Develop skills for capturing moving images</li> <li>Convey ideas for capturing video footage</li> <li>Arrange clips to create a short film</li> </ul>	<ul style="list-style-type: none"> <li>Capture a video for a purpose</li> <li>Chose which clips to keep and which to discard</li> <li>Trim and arrange clips to convey meaning</li> </ul>	<ul style="list-style-type: none"> <li>Add titles and credits</li> <li>Use slide translations and special effects to add to a movie</li> </ul>	<ul style="list-style-type: none"> <li>Storyboard and capture video for a purpose</li> <li>Plan for the use of special effects and transitions</li> </ul>	<ul style="list-style-type: none"> <li>Plan a multi-scene animation including character, scenes, camera angles and special effects</li> </ul>



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<b>Related National Curriculum Objectives in italics:</b>	<i>-Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</i>	<i>-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. -Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.</i>
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### Digital Imagery

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> <li>Shows an interest in technological toys with knobs or pulleys, or real objects such as cameras or mobile phones.</li> </ul>	<ul style="list-style-type: none"> <li>Use a digital camera to take a photo</li> <li>To add text to a photo.</li> </ul>	<ul style="list-style-type: none"> <li>Create and save a digital picture</li> <li>Use technology to manipulate a digital picture</li> <li>To use a digital image to create a repeating pattern</li> </ul>	<ul style="list-style-type: none"> <li>Use the print screen or snip function to capture an image</li> <li>Acquire, store and combine images from cameras or the internet for a purpose</li> </ul>	<ul style="list-style-type: none"> <li>Use advanced settings on cameras to take digital images</li> <li>Manipulate and layer images</li> <li>Use CAD(computer aided design) to design 3D shapes</li> </ul>	<ul style="list-style-type: none"> <li>Confidently use advanced settings on cameras to take digital images</li> <li>Use a range of tools to edit and manipulate photos</li> <li>Use software to create 3D representations</li> </ul>	<ul style="list-style-type: none"> <li>Confidently take, upload, save, retrieve and embed photos</li> <li>Confidently edit and manipulate photos for a purpose, evaluating their success</li> </ul>

<b>Related National Curriculum Objectives in italics:</b>	<i>-Use technology purposefully to create, organise, store, manipulate and retrieve digital content. -Recognise common uses of technology beyond school.</i>	<i>-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.</i>
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### Music and Sound

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> <li>Shows how to operate simple equipment, e.g. turns on CD player and uses a remote control</li> </ul>	<ul style="list-style-type: none"> <li>Record a sound at and away from the computer</li> <li>Play sounds back</li> </ul>	<ul style="list-style-type: none"> <li>Use software to record sounds</li> <li>Save, retrieve and edit sounds</li> <li>Change sounds recorded</li> </ul>	<ul style="list-style-type: none"> <li>Combine, text, images and sound on a page</li> <li>Combine sounds to create a simple soundtrack</li> </ul>	<ul style="list-style-type: none"> <li>Record sounds/ narration to accompany photos</li> <li>Manipulate length of recordings to fit where needed</li> <li>Create a more complex soundtrack using a variety of different sounds layered together</li> </ul>	<ul style="list-style-type: none"> <li>Collect audio from a variety of resources including own recordings and internet clips</li> <li>Create a multi-track recording using effects</li> </ul>	<ul style="list-style-type: none"> <li>Edit and refine their sound recordings to improve outcomes</li> <li>Trim, arrange and edit audio levels to improve quality of the outcome</li> </ul>

<b>Related National Curriculum Objectives</b>	<i>-Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</i>	<i>-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,</i>
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<b>in italics:</b>		<i>analysing, evaluating and presenting data and information.</i>				
<b>Data</b>						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> <li>Children recognise that a range of technology is used in places such as homes and schools.</li> </ul>	<ul style="list-style-type: none"> <li>Know that images give information</li> <li>Input simple data to create a bar chart/pictogram</li> </ul>	<ul style="list-style-type: none"> <li>Collect data using tick or tally charts</li> <li>Use simple graphing software to produce pictograms and basic graphs to analyse data</li> </ul>	<ul style="list-style-type: none"> <li>Design a questionnaire to collect data</li> <li>Interpret data collected and produce a graph to show findings</li> </ul>	<ul style="list-style-type: none"> <li>Recognise which data is suitable for their topic</li> <li>Select relevant data to present on a topic</li> </ul>	<ul style="list-style-type: none"> <li>Create data collection forms and enter data accurately from these</li> <li>Know which formulas to use when the spreadsheet model needs changing</li> <li>Make graphs from calculations on the spreadsheet</li> </ul>	<ul style="list-style-type: none"> <li>Know how to check for and spot inaccurate data</li> <li>Understand that changing the numerical data effects the calculation.</li> <li>Sort and filter information</li> </ul>
<b>Related National Curriculum Objectives in italics:</b>	<i>-Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</i>		<i>-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.</i>			
<b>E-Safety</b>						
EYFS				<b>Related Curriculum Objectives:</b>		
<ul style="list-style-type: none"> <li>Recognise that sometimes things online can be upsetting or scary</li> <li>Children are aware that they can use the internet to play and learn supported by a trusted adult/teacher</li> <li>To understand the difference between real and online experiences</li> <li>Know that the internet can be used to communicate with family and friends.</li> <li>Know that pictures and messages can be shared safely with family using Dojo</li> </ul>				<ul style="list-style-type: none"> <li><i>-To safely select and use technology for a particular purpose</i></li> </ul>		
Year 1				<b>Related Curriculum Objectives:</b>		
<ul style="list-style-type: none"> <li>Understand the schools e-safety policy appropriate to age</li> <li>To begin to understand they have to abide by the rules on Internet Safety</li> <li>identify what things can be classed as personal information</li> <li>Understand passwords are used to log in and why these should be kept private</li> <li>Know what to do if they find something inappropriate online</li> <li>to understand that messages can be sent electronically over distances and these should be polite and friendly</li> </ul>				<ul style="list-style-type: none"> <li><i>-Use technology safely and respectfully, keeping personal information private; where to go for help and support when they have concerns about content or contact on the internet or other online technologies.</i></li> </ul>		
Year 2				<b>Related Curriculum Objectives:</b>		
<ul style="list-style-type: none"> <li>Understand the schools e-safety policy appropriate to age</li> <li>Understand passwords are used to log in and why these should be kept private.</li> <li>Recognise that a range of devices can be used to connect to a variety of people</li> </ul>				<ul style="list-style-type: none"> <li><i>-Use technology safely and respectfully, keeping personal information private; where to go for help and support when they have concerns about content or contact on the internet or</i></li> </ul>		



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<ul style="list-style-type: none"> <li>• Share ideas with others using email in a polite and friendly manor.</li> <li>• Consider the effect of their online actions on others</li> <li>• To know that not everything on the internet is true.</li> <li>• To use a search engine</li> <li>• Identify the steps that can be taken to keep personal data and hardware secure</li> </ul>	<p><i>other online technologies.</i></p>
<b>Year 3</b>	
<ul style="list-style-type: none"> <li>• Understand the schools e-safety policy; appropriate to their age</li> <li>• Understand passwords are used to log in to access some web content and why these should be kept private.</li> <li>• Use age appropriate search engines/ trusted websites provided by the teacher</li> <li>• Make judgements in order to stay safe, whilst communicating with others online</li> <li>• Understand that email/messages have to be sent to a specific email address/recipient and received emails.</li> <li>• Articulate examples of good and bad online behaviours and know not everything on the internet is true.</li> <li>• Know what to do if they access something inappropriate.</li> <li>• To share ideas with others by responsibly publishing online using 2Blog.</li> <li>• To understand that blogs can be for a wider audience and can be seen and responded to by a wider group of people and understand the need for responsible use.</li> <li>• Recognise social networking sites and social networking features built into other things (such as online games and handheld games consoles)</li> </ul>	<p><b>Related Curriculum Objectives:</b>  <i>-Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</i></p>
<b>Year 4</b>	
<ul style="list-style-type: none"> <li>• Understand the schools e-safety policy; appropriate to their age</li> <li>• Understand passwords are used to log in to access some web content and why these should be kept private.</li> <li>• Children recognise the need to keep some information private in order to protect them when communicating online.</li> <li>• To be able to present information and share it with others through, Blogs, forums and creating their own pages on the VLE's secure environment</li> <li>• Question the validity of what they see on the internet and know that not everything they see is true.</li> <li>• Children use the internet, as a resource to support their work, and begin to understand plagiarism/copyright</li> <li>• Continue to recognise social networking sites and social networking features built into other things (such as online games and handheld games consoles).</li> <li>• Identify dangers when presented with scenarios</li> <li>• Know what to do if they access something inappropriate.</li> <li>• Children begin to recognise how electronic communications may be used for</li> </ul>	<p><b>Related Curriculum Objectives:</b>  <i>-Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</i></p>



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manipulation or persuasion							
Year 5							
<ul style="list-style-type: none"> <li>Understand the schools e-safety policy; appropriate to their age.</li> <li>Understand passwords are used to log in to access some web content and why these should be kept private.</li> <li>Share and exchange their ideas using e-mail and electronic communications respectfully</li> <li>Judge what sort of privacy settings might be relevant to reducing different risks</li> <li>Judge when and when not to answer a question online.</li> <li>Children understand that good online research involves processing the information (rather than copying) and interpreting it for others</li> <li>Recognise that not all information on the internet is accurate or unbiased (advertising)</li> <li>Recognise issues of copyright and the importance of acknowledging sources</li> <li>To be able to present information and share it with others</li> <li>Find 'report' and 'flag' buttons in commonly used sites and names sources of help (childline etc.)</li> </ul>					<p><b>Related Curriculum Objectives:</b></p> <p><i>-Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</i></p>		
Year 6							
<ul style="list-style-type: none"> <li>Understand the potential risks of providing personal information in an increasing range online technologies both within and outside</li> <li>Recognise their own right to be protected from the inappropriate use of technology by others and the need to respect the rights of other users</li> <li>Articulate what constitutes good behaviour online and know what to do if they access something inappropriate</li> <li>Use different sources to double check information found online</li> <li>-Act as a role model for younger pupils</li> </ul>					<p><b>Related National Curriculum Objectives in italics:</b></p> <p><i>-Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</i></p>		



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