



# Computing

At Pot Kiln School a high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

## Aims of the Computing Curriculum

At Pot Kiln School we aim to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology



# Year 1

<b>Autumn Topic- Totally Terrific Toys</b>	<b>Spring Topic –Amazing Animals</b>	<b>Summer Topic -</b>
<p><b>Autumn One</b> E-Safety</p> <p><b>Autumn Two</b> IPAD's to use Bug Club</p>	<p><b>Spring One</b> Algorithms</p> <p><b>Spring Two</b> Programming Beebots</p>	<p><b>Summer One</b> Using technology – Log on, use program and Log off.</p> <p><b>Summer Two</b> Use technology to retrieve information. E-Safety</p>
<b>National Curriculum Objectives</b>	<b>National Curriculum Objectives</b>	<b>National Curriculum Objectives</b>
<ul style="list-style-type: none"> <li>• <b>Autumn One</b> use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies</li> <li>• <b>Autumn Two</b> use technology purposefully to create, organise, store, manipulate and retrieve digital content</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Spring One</b> understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions</li> <li>• <b>Spring Two</b> create and debug simple programs</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Summer One</b> use technology purposefully to create, organise, store, manipulate and retrieve digital content</li> <li>• <b>Summer Two</b> use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies</li> </ul>
<b>Assessment Criteria</b>	<b>Assessment Criteria</b>	<b>Assessment Criteria</b>
<ul style="list-style-type: none"> <li>• <b>Autumn One</b> Understand where to go for</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Spring One</b> Understand what algorithms are</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Summer One</b> Use technology purposefully to</li> </ul>

<p>help/support when he/she has concerns about content or contact on the internet or other online technologies.  <b><i>I know to tell an adult if I see anything worrying online.</i></b></p> <ul style="list-style-type: none"> <li> <b>Autumn Two</b>            Recognise common uses of technology in the home and school environment  <b><i>I can recognise how I use technology in my home and school.</i></b> </li> </ul>	<p>and how they are implemented on digital devices.  <b><i>I can explain that an algorithm is a step by step set of instructions.</i></b></p> <ul style="list-style-type: none"> <li> <b>Spring Two</b>            Predict the behaviour of simple programs  <b><i>I can predict the behaviour of a programmed toy.</i></b> </li> </ul>	<p>create digital content  <b><i>I can use a program to create a simple document.</i></b></p> <ul style="list-style-type: none"> <li> <b>Summer Two</b>            Understand where to go for help/support when he/she has concerns about content or contact on the internet or other online technologies.  <b><i>I know to tell an adult if I see anything worrying online.</i></b> </li> </ul>
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## Year 2

<b>Autumn Topic – Heroes and Villains</b>	<b>Spring Topic – Turrets and Talons</b>	<b>Summer Topic – The Secret Garden</b>
<p><b>Autumn One</b> Algorithms</p> <p><b>Autumn Two</b> E-Safety Using the internet to share information</p>	<p><b>Spring One</b> Programming – Bee Bots</p> <p><b>Spring Two</b> Coding</p>	<p><b>Summer One</b> Using ICT to present Non Fiction books</p> <p><b>Summer Two</b> E-Safety – Using the internet to share information</p>
<b>National Curriculum Objectives</b>	<b>National Curriculum Objectives</b>	<b>National Curriculum Objectives</b>
<ul style="list-style-type: none"> <li>• <b>Autumn One</b> understand what <i>algorithms</i> are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions</li> <li>• <b>Autumn Two</b> use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Spring One</b> use logical reasoning to predict the behaviour of simple programs</li> <li>• <b>Spring Two</b> understand what algorithms are, how they are implemented as programs on digital devices, and that <i>programs</i> execute by following precise and unambiguous instructions</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Summer One</b> recognise common uses of information technology beyond school</li> <li>• <b>Spring Two</b> understand what algorithms are, how they are implemented as programs on digital devices, and that <i>programs</i> execute by following precise and unambiguous instructions</li> </ul>

Assessment Criteria	Assessment Criteria	Assessment Criteria
<ul style="list-style-type: none"> <li data-bbox="237 248 790 459"> <p>• <b>Autumn One</b> Understand that programs execute by following precise and unambiguous instructions <b><i>I can understand that programs run by following clear instructions</i></b></p> </li> <li data-bbox="237 501 790 676"> <p>• <b>Autumn Two</b> Use technology safely and keep personal information private <b><i>I know I need to keep my personal information private.</i></b></p> </li> </ul>	<ul style="list-style-type: none"> <li data-bbox="869 248 1397 496"> <p>• <b>Spring One</b> Use logical reasoning to predict the behaviour of simple programs <b><i>I can predict the behaviour of a programmed toy, clearly relating each action to part of an algorithm.</i></b></p> </li> <li data-bbox="869 537 1397 676"> <p>• <b>Spring Two</b> Create simple programs <b><i>I can create a simple program to perform a task.</i></b></p> </li> <li data-bbox="869 718 1397 857"> <p>• Create and debug simple programs <b><i>I can create and debug simple programs</i></b></p> </li> <li data-bbox="869 898 1397 1074"> <p>• Debug simple programs by using logical reasoning to predict the actions instructed by the code. <b><i>I can find and fix simple bugs in programs.</i></b></p> </li> </ul>	<ul style="list-style-type: none"> <li data-bbox="1496 248 2042 459"> <p>• <b>Summer One</b> Recognise common uses of information technology beyond school. <b><i>I can recognise how others use technology outside of school.</i></b></p> </li> <li data-bbox="1496 501 2042 676"> <p>• Use technology purposefully to create, organise, store, manipulate and retrieve digital content. <b><i>I can find, open, edit and save files I am working on.</i></b></p> </li> <li data-bbox="1496 718 2042 928"> <p>• Use technology purposefully to create digital content comparing the benefits of different programs. <b><i>I can use different software programs and discuss the benefits of their usage.</i></b></p> </li> <li data-bbox="1496 970 2042 1145"> <p>• <b>Summer Two</b> Use technology safely and keep personal information private <b><i>I know I need to keep my personal information private.</i></b></p> </li> </ul>



## Years 3 and 4

<b>Autumn</b> <b>Topic – Romans</b>	<b>Spring</b> <b>Topic – WWII</b>	<b>Summer</b> <b>Topic – Healthy Living</b>
<p><b>Autumn One</b> Using a search engine</p> <p><b>Autumn Two</b> Research</p>	<p><b>Spring One</b> Coding-Scratch</p> <p><b>Spring Two</b> Problem solving De-bugging</p>	<p><b>Summer One</b> E-safety</p> <p><b>Summer Two</b> Filming</p>
<b>National Curriculum Objectives</b>	<b>National Curriculum Objectives</b>	<b>National Curriculum Objectives</b>
<ul style="list-style-type: none"> <li>• <b>Autumn One</b> use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</li> <li>• <b>Autumn Two</b> 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</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Spring One</b> design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>• <b>Spring Two</b> use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Summer One</b> use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</li> <li>• <b>Summer Two</b> use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> </ul>

Assessment Criteria Year 3	Assessment Criteria Year 3	Assessment Criteria Year 3
<ul style="list-style-type: none"> <li data-bbox="237 248 757 384">• <b>Autumn One</b> Use simple search technologies <b><i>I can use a search engine to find web pages.</i></b></li> <li data-bbox="237 427 757 600">• Use simple search technologies and recognise that some sources are more reliable than others <b><i>I understand that not all websites are as reliable as others.</i></b></li> <li data-bbox="237 643 757 890">• <b>Autumn Two</b> Understand that computer networks enable the sharing of data and information <b><i>I understand that computer networks allow data to be transferred and shared.</i></b></li> <li data-bbox="237 933 757 1181">• Understand that the internet is a large network of computers and that information can be shared between computers <b><i>I understand that the internet is a large networks that enables computers to share information.</i></b></li> </ul>	<ul style="list-style-type: none"> <li data-bbox="860 248 1391 421">• <b>Spring One</b> Use logical reasoning to explain how simple algorithms work <b><i>I can explain how simple algorithms solve a given problem.</i></b></li> <li data-bbox="860 464 1391 675">• <b>Spring Two</b> Design, write and debug programs that control or simulate virtual events <b><i>I can produce a simple program that completes a given task.</i></b></li> </ul>	<ul style="list-style-type: none"> <li data-bbox="1473 248 2047 459">• <b>Summer One</b> Use technology safely and respectfully, keeping personal information private <b><i>I know I need to keep my password and personal information secure.</i></b></li> <li data-bbox="1473 502 2047 675">• Use technology safely and recognise acceptable and unacceptable behaviour <b><i>I can recognise acceptable and unacceptable behaviour online.</i></b></li> <li data-bbox="1473 718 2047 928">• <b>Summer Two</b> Recognise familiar forms of input and output devices and how they are used <b><i>I know what input and output devices are and how they are used.</i></b></li> <li data-bbox="1473 971 2047 1109">• Make efficient use of familiar forms of input and output devices <b><i>I can use a range of input and output devices efficiently.</i></b></li> <li data-bbox="1473 1152 2047 1289">• With support select and use a variety of software to achieve goals <b><i>I can make a choice on which program is best for the given task.</i></b></li> </ul>

Assessment Criteria Year 4	Assessment Criteria Year 4	Assessment Criteria Year 4
<ul style="list-style-type: none"> <li>• <b>Autumn One</b> Understand what servers are and how they provide services to a network <b><i>I understand that some computers on a network serve a particular function, such as controlling printers or sharing files.</i></b></li> <li>• <b>Autumn Two</b> Understand how results are selected and ranked by search engines</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Spring One</b> Decompose programs into smaller parts <b><i>I can break programs into smaller parts.</i></b></li> <li>• Select, use and combine a variety of software, systems and content that accomplish given goals <b><i>I can use other programs as I code.</i></b></li> <li>• <b>Spring Two</b> Use logical reasoning to detect and correct errors in algorithms and programs <b><i>I can use logical thinking to identify and solve potential bugs during coding.</i></b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Summer One</b> Use technology responsibly and understand that communication online may be seen by others <b><i>I understand that what I say or post on the internet might be copied, shared and stored by others.</i></b></li> <li>• Understand where to go for help and support when he/she has concerns about content on the internet or other online technologies <b><i>I know what to do if I see anything worrying online.</i></b></li> <li>• <b>Summer Two</b> Use other input devices such as cameras or sensors <b><i>I can use more complicated input devices</i></b></li> <li>• With support select and use a variety of software on a range of digital devices <b><i>I can use different software programs and different types of hardware.</i></b></li> <li>• With support select, use and combine a variety of software on a range of digital devices to accomplish given goals</li> </ul>

		<i>I can use a range of programs to complete a task.</i>
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## Year 5 and 6

<b>Autumn Topic – Eco Warriors</b>	<b>Spring Topic – Stone Age</b>	<b>Summer Topic – Tudors</b>
<p><b>Autumn One</b> Social Media</p> <p><b>Autumn Two</b> E-Safety</p>	<p><b>Spring One</b> Sketch Up – Architectural Design</p> <p><b>Spring Two</b> Sketch Up – Architectural Design</p>	<p><b>Summer One</b> Programming Skills</p> <p><b>Summer Two</b> Programming Skills</p>
<b>National Curriculum Objectives</b>	<b>National Curriculum Objectives</b>	<b>National Curriculum Objectives</b>
<ul style="list-style-type: none"> <li>• <b>Autumn One</b> understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for <i>communication and collaboration</i></li> <li>• <b>Autumn Two</b> use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Spring One</b> 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</li> <li>• <b>Spring Two</b> 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</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Summer One</b> use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>• <b>Summer Two</b> use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> </ul>

	presenting data and information	
<b>Assessment Criteria Year 5</b>	<b>Assessment Criteria Year 5</b>	<b>Assessment Criteria Year 5</b>
<ul style="list-style-type: none"> <li>• <b>Autumn One</b> Begin to use internet services to share and transfer data to a third party <b><i>I can use the internet to allow me to share data with another person.</i></b></li> <li>• <b>Autumn Two</b> Understand the need to only select age appropriate content <b><i>I understand how to choose online content for my age group.</i></b></li> <li>• Use filters in search technologies effectively <b><i>I can use more advanced features when searching online.</i></b></li> <li>• Use filters in search technologies effectively and appreciates how results are selected and ranked <b><i>I can use a range of search tools to find exactly what I am looking for.</i></b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Spring One</b> Independently select and use appropriate software for a task <b><i>I can select appropriate software to use for a given task.</i></b></li> <li>• <b>Spring Two</b> Independently select, use and combine a variety of software to design and create content for a given audience <b><i>I can confidently use a range of software tools.</i></b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Summer One</b> Design, input and test an increasingly complex set of instructions to a program or device <b><i>I can write increasingly complex programs.</i></b></li> <li>• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems <b><i>I can control external hardware from within programs.</i></b></li> <li>• Design, write and test simple programs that follow a sequence of instructions or allow a set of instructions to be repeated <b><i>I can use loops to repeat tasks within a program.</i></b></li> <li>• Design, write and test simple programs with opportunities for selection, where a particular result will happen based on actions or situations controlled by the user <b><i>I can use IF statements to alter the way my programs run.</i></b></li> </ul>

		<ul style="list-style-type: none"> <li>• <b>Summer Two</b> Use logical reasoning to explain how increasingly complex algorithms work to ensure a program's efficiency. <b><i>I can explain how increasingly complex algorithms solve a given problem.</i></b></li> </ul>
<b>Assessment Criteria Year 6</b>	<b>Assessment Criteria Year 6</b>	<b>Assessment Criteria Year 6</b>
<ul style="list-style-type: none"> <li>• <b>Autumn One</b> Begin to use internet services within his/her own creations to share and transfer data to a third party <b><i>I can use and combine services on the internet to share information.</i></b></li> <li>• <b>Autumn Two</b> Use technology respectfully and responsibly <b><i>I understand how to protect my computer or device from harm on the internet.</i></b></li> <li>• Identify a range of ways to report concerns about content and contact in and out of school <b><i>I understand how to report concerns about content and contact in and out of school.</i></b></li> <li>• Be discerning when evaluating digital content</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Spring One</b> Include use of sequences, selection and repetition with the hardware used to explore real world systems <b><i>I can combine software and hardware to solve real life problems.</i></b></li> <li>• <b>Spring Two</b> Independently, select, use and combine a variety of software to collect, analyse, evaluate and present data and information <b><i>I can use software to help me analyse and present data and information.</i></b></li> <li>• Independently select, use and combine a variety of software to design and create content for a given audience, including collecting, analysing, evaluating</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Summer One</b> Solve problems by decomposing them into smaller parts <b><i>I can break code up into related instructions, making debugging easier and quicker.</i></b></li> <li>• Create programs which use variables <b><i>I can store and retrieve variables in a program.</i></b></li> <li>• Use variables, sequence, selection and repetition in programs <b><i>I can use loops, variables and IF statements to alter the way my programs run.</i></b></li> <li>• Design and create a range of programs, systems and content for a given audience <b><i>I can design a program for a</i></b></li> </ul>

<p><b><i>I can recognise trustworthy sources of information on the internet.</i></b></p> <ul style="list-style-type: none"><li>• Use filters in search technologies effectively and is discerning when evaluating digital content</li></ul> <p><b><i>I can use a broad range of resources online to find exactly what I'm looking for.</i></b></p>	<p>and presenting data and information</p> <p><b><i>I can use more than one piece of software to complete a task.</i></b></p>	<p><b><i>given audience.</i></b></p> <ul style="list-style-type: none"><li>• <b>Summer Two</b> Use logical reasoning to explain how increasingly complex algorithms work and to detect and correct errors in algorithms and programs efficiently</li></ul> <p><b><i>I can use logical thinking to identify and solve potential bugs during coding.</i></b></p>
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