

**Pupils should be taught :**

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- Understand 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
- Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- 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.

Year 5	Year 5	Year 6	Year 6
<p><b>Online Safety</b> Pupils create an online safety resource for younger children using tools such as presentation software, video tools or a simple stop-motion animation.</p>	<ul style="list-style-type: none"> <li>• Recognising that information on the Internet might not be true or correct.</li> <li>• Using technology safely, by recognising acceptable/unacceptable behaviour and knowing what to do when they have concerns about content or contact online.</li> </ul>	<p><b>Bletchley Park</b> Children learn about the history of Bletchley Park including: key historical figures, how the first modern computers were created as part of a WWII code breaking team and consider how computers have evolved over time. They then go on to investigate secret codes and how they are created, exploring ‘brute force’ hacking and learn how to make passwords more secure.</p>	<ul style="list-style-type: none"> <li>• Understanding the importance of secure passwords and using searching and word processing skills to create a presentation.</li> <li>• Using programming software to understand hacking, relating this to computer cracking codes in WWII.</li> </ul> <p><b>Cross-curricular links – History &amp; Maths</b></p>
<p><b>Lego WeDo</b> Programming a small device using Lego to sequence lights on its simple LED display, create sounds and movement, using block coding. The children will also think about how to improve their project.</p>	<ul style="list-style-type: none"> <li>• Using block coding to program a device</li> <li>• To explore variables and different forms of input</li> <li>• Understand how a separate computer can program external devices.</li> <li>• Using programming language to create sounds, including use of loops.</li> </ul>	<p><b>Intro to Python</b> Building on their knowledge of coding from previous years, children are introduced to the text based programming language Python, which is the language behind many apps and programs, such as Dropbox.</p>	<ul style="list-style-type: none"> <li>• Editing sound recordings for specific purpose.</li> <li>• Learning about the history of computers and how they evolved over time.</li> </ul> <p><b>Cross-curricular links – English</b></p>
<p><b>Search Engines</b> To enable children to quickly and accurately find information and become independent learners. They need to develop their searching skills and learn how to identify trustworthy sources.</p>	<ul style="list-style-type: none"> <li>• Recognising that information on the Internet might not be true or correct.</li> <li>• Know how to use key words to quickly find accurate information.</li> </ul>	<p><b>Big Data 1</b> Children learn how data is collected and stored by exploring barcodes, QR codes and RFID chips, and investigate</p>	<ul style="list-style-type: none"> <li>• Understanding that websites can be altered by exploring the code beneath the site.</li> <li>• Designing, writing and debugging programs that accomplish specific goals.</li> <li>• Solving problems by decomposing them into smaller parts.</li> </ul> <p><b>Cross-curricular links – Art/Design &amp; Maths</b></p>
<p><b>Sonic Pi</b> Composing music using code through Sonic Pi, pupils can import</p>	<ul style="list-style-type: none"> <li>• Selecting, using and combining a variety of software to design and create a range of programs, systems and content that accomplish given goals.</li> <li>• Using programming language to create music, including use of loops.</li> </ul>	<p><b>Big Data 1</b> Children learn how data is collected and stored by exploring barcodes, QR codes and RFID chips, and investigate</p>	<ul style="list-style-type: none"> <li>• Understanding how learning can be applied to a real world context.</li> </ul>

<p>samples, add drumbeats and compose simple tunes culminating in a 'battle of the bands' using live loops of music.</p>	<p><b>Cross-curricular links – English: Reading &amp; Music</b></p>	<p>how collecting big data can be used to help people in a variety of different scenarios.</p>	<ul style="list-style-type: none"> <li>• Selecting, using and combining a variety of software to design and create a range of programs, systems and content to collect, analyse, evaluate and present data.</li> <li>• Understanding that computer networks provide multiple services.</li> <li>• Understanding how barcodes and QR codes work.</li> </ul>
<p><b>Mars Rover 1</b> Pupils explore inputs and outputs as well as binary numbers to understand how the Mars Rover transmits and receives data and how scientists are able to control it to explore another planet.</p>	<ul style="list-style-type: none"> <li>• Understanding computer networks including the internet; how they can provide multiple services, such as the worldwide web; and the opportunities they offer for communication and collaboration.</li> <li>• Using search technologies effectively, appreciating how results are selected and ranked, and be discerning in evaluating digital content.</li> <li>• Recognising that computers transfer data in binary and understand simple binary addition.</li> </ul>	<p><b>Big Data 2</b> Children learn the difference between mobile data and Wi-Fi, and how data is transferred. They use their understanding of big data to design their own smart school.</p>	<ul style="list-style-type: none"> <li>• Selecting, using and combining a variety of software to design and create a range of programs, systems and content to collect, analyse, evaluate and present data</li> </ul>
<p><b>Mars Rover 2</b> Children learn how the Mars Rover is able to send images all the way back to Earth and experiment with online CAD software to design new tyres for it.</p>	<ul style="list-style-type: none"> <li>• Developing their CAD skills.</li> <li>• Understanding how image data is transferred.</li> </ul>	<p><b>Skills Showcase</b> Reflecting on and showcasing their computing skills, pupils create an entire project around a specific theme.</p>	<ul style="list-style-type: none"> <li>• Showcasing their digital literacy skills.</li> <li>• Demonstrating their computational thinking skills by designing and debugging programs, using different inputs and outputs.</li> <li>• Understanding how search engines work and knowing how to use them safely and effectively.</li> </ul>

**Bold statements:** Sticky Knowledge that must be secured to ensure progression to next year group