

| Super-Curricular Opportunities |  |  |  |  |  |   |   |
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| Subject                        | Key Stage Three  | KS3 Book/Broadcast /Competition  | Pre GCSE/GCSE  | GCSE Book/Broadcast /Competition   | Post-16  | Post-16 Book/Broadcast/Competition  | Websites / Virtual Tours  |
| Computer Science               | <ul style="list-style-type: none"> <li>Students learn two text based programming languages</li> <li>Python – a high level language (free download of IDE called IDLE)</li> <li>Small basic (free download from Microsoft)</li> <li>Scratch (free download from MIT or use of online resource)</li> <li>Student also learn scripting languages</li> <li>Javascript – <a href="http://www.codecademy.com">www.codecademy.com</a> or <a href="http://www.codecombat.com">www.codecombat.com</a></li> <li>HTML and CSS as above</li> <li>BBC Microbit opportunities <a href="https://www.microbit.co.uk/teachers-and-parents">https://www.microbit.co.uk/teachers-and-parents</a></li> </ul> <p>Visit the Museum of Technology in Hertfordshire to look at the technological</p> | <ul style="list-style-type: none"> <li>BBC Bitesize webpages <a href="#">KS3 ICT - BBC Bitesize</a></li> <li><a href="#">Teach-ICT Computer Science learning for school students</a></li> <li><a href="#">KIDS REACT TO OLD COMPUTERS - YouTube</a></li> </ul> <p>Watch the Imitation Game movie to learn about the Enigma code.</p> <p>Podcast on Science and Technology <a href="#">BBC World Service - World Wise Web - Downloads</a></p> <p>Books: Computational Fairy Tales by Jeremy Kubica.</p> | <ul style="list-style-type: none"> <li>Keep up to date with the social impact of ICT – BBC technology pages</li> <li>Research the impact of Alan Turing on the development of computing. Why is he important?</li> <li>Research different types of interface - where are they needed?</li> <li>Download Little man computer – run practical activities</li> <li>Practice programming skills</li> <li>Number based conversion systems – Binary- Hex – Octal etc.</li> <li>Understanding computer networks</li> <li>What are the dangers of databases? Make a list of all the databases you appear on.</li> <li>Search for logic gates online and complete activities</li> </ul> | <ul style="list-style-type: none"> <li>2001: A Space Odyssey (1968)</li> <li>The Net(1995)</li> <li>Enemy of the state (1998) – state monitoring of private communications</li> <li>A.I. Artificial Intelligence (2001)</li> <li>Watch ‘Click’ on BBC News channel</li> </ul> <p>Ted talks on Technology: <a href="#">TED Talks</a></p> <p>Books: The Pattern on the Stone: the Simple Ideas that make Computers Work by W Daniel Hills.</p> | <ul style="list-style-type: none"> <li>Understand the basics of computational thinking</li> <li>Research different types of data transmission</li> <li>Practice Boolean algebra</li> <li>Who was Edsger Dijkstra? Why is he important?</li> <li>Who is Charles Richardson Hoare? Why is he important?</li> <li>Research algorithmic sorting</li> <li><a href="#">Assembly languages – Isaac Computer Science</a> Create low level code using LMC which operates a simple program. Generate LMC code from a simple high-level program you have created in Java.</li> <li><a href="#">visualising data structures and algorithms through animation - VisuAlgo</a></li> </ul> <p>Compare common algorithms and data</p> | <p>Documentaries:</p> <ul style="list-style-type: none"> <li>The Code-Breakers (2006)</li> <li>Steal This Film (2006)</li> <li>Hackers Are People Too (2008)</li> <li>Hackers Wanted (2010)</li> <li>The Virtual Revolution (2010)</li> <li>Code - Breakers, Bletchley Park's Lost Heroes (2011)</li> <li>We Are Legion (2012)</li> <li>DEFCON: The Documentary (2013)</li> <li>The Internet's Own Boy: The Story of Aaron Swartz (2014)</li> </ul> | <p>HM Government’s Cyber Schools Programme</p> <p><a href="#">The free programme that empowered over 100,000 young people to try cyber security   Cyber Discovery: HM Government's Cyber Schools Programme (joincyberdiscovery.com)</a></p> <p>Cyberthreats</p> <p><a href="#">Emerging Cyberthreats   Norton Internet Security Center</a></p> <p>Cisco Networking courses <a href="#">Cisco Networking Academy. Build your skills today, online. It’s Free - Cisco</a></p> <p>Learn Java</p> <p><a href="#">Java Tutorial (w3schools.com)</a></p> <p>Work with XML documents</p> <p><a href="#">Semantic Web - W3C</a></p> <p>Learn Programming Language</p> <p><a href="#">C++ Tutorial (w3schools.com)</a></p> <p>Create a webpage using PHP</p> |

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|  | revolution since the 1850s |  | <ul style="list-style-type: none"><li>• Practice some Python techniques on HackerRank <a href="#">Activities   Classic CS Unplugged</a></li><li>• Write a short essay debating the following question – is technology increasing people’s quality of life?</li></ul> |  | structures by researching the differences between the ways they operate. Using Big-O to compare efficiency. |  | <a href="http://w3schools.com">PHP Tutorial (w3schools.com)</a> |
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