

## Overview of units

| Unit  | Expectations   | Computing PoS   | Software/Apps   | Hardware                              |
|---|--|---|---|---------------------------------------|
| <b>5.1</b><br><b>We are game developers</b><br>Developing an interactive game | <ul style="list-style-type: none"> <li>• Create original artwork and sound for a game.</li> <li>• Design and create a computer program for a computer game, which uses sequence, selection, repetition and variables.</li> <li>• Detect and correct errors in their computer game.</li> <li>• Use iterative development techniques (making and testing a series of small changes) to improve their game.</li> </ul>  | <ul style="list-style-type: none"> <li>• 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>• Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.</li> <li>• Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</li> <li>• 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...</li> </ul> | <b>Software:</b> Scratch (or Kodu)<br><b>Apps:</b> Snap! in the web browser (Scratch requires Flash, which is not available on iPad)  | Desktop/laptop computers, microphones |
| <b>5.2</b><br><b>We are cryptographers</b><br>Cracking codes                  | <ul style="list-style-type: none"> <li>• Be familiar with semaphore and Morse code.</li> <li>• Understand the need for private information to be encrypted.</li> <li>• Encrypt and decrypt messages in simple ciphers.</li> <li>• Appreciate the need to use complex passwords and to keep them secure.</li> <li>• Have some understanding of how encryption works on the web.</li> </ul>  | <ul style="list-style-type: none"> <li>• Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</li> <li>• 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.</li> <li>• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</li> </ul>   | <b>Software:</b> Scratch 2.0, The Black Chamber (website)<br><b>Apps:</b> Snap!, The Black Chamber in the web browser (Safari)        | Laptop/desktop computers              |
| <b>5.3</b><br><b>We are artists</b><br>Fusing geometry and art                | <ul style="list-style-type: none"> <li>• Develop an appreciation of the links between geometry and art.</li> <li>• Become familiar with the tools and techniques of a vector graphics package.</li> <li>• Develop an understanding of turtle graphics.</li> <li>• Experiment with the tools available, refining and developing their work as they apply their own criteria to evaluate it and receive feedback from their peers.</li> <li>• Develop some awareness of computer-generated art, in particular fractal-based landscapes.</li> </ul> | <ul style="list-style-type: none"> <li>• Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.</li> <li>• Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</li> <li>• 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>   | <b>Software:</b> Inkscape/ Adobe Illustrator/ CorelDRAW, Scratch, Terragen Classic, Logo<br><b>Apps:</b> Adobe Ideas/neu. draw, Snap! | Laptop or desktop computers/tablets   |

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| <p><b>5.4</b><br/><b>We are web developers</b><br/>Creating a website about cyber safety</p> | <ul style="list-style-type: none"> <li>• Develop their research skills to decide what information is appropriate.</li> <li>• Understand some elements of how search engines select and rank results.</li> <li>• Question the plausibility and quality of information.</li> <li>• Develop and refine their ideas and text collaboratively.</li> <li>• Develop their understanding of e-safety and responsible use of technology.</li> </ul> | <ul style="list-style-type: none"> <li>• 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.</li> <li>• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</li> <li>• 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>• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</li> </ul> | <p><b>Software:</b> Google, Bing, Google Sites/wiki tool in the school's learning platform/WordPress</p> <p><b>Apps:</b> Google Search app, Google Sites via browser</p>              | <p>Desktop or laptop computers/tablets</p>                 |
| <p><b>5.5</b><br/><b>We are bloggers</b><br/>Sharing experiences and opinions</p>            | <ul style="list-style-type: none"> <li>• Become familiar with blogs as a medium and a genre of writing.</li> <li>• Create a sequence of blog posts on a theme.</li> <li>• Incorporate additional media.</li> <li>• Comment on the posts of others.</li> <li>• Develop a critical, reflective view of a range of media, including text.</li> </ul>  | <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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>• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</li> <li>• ... be discerning in evaluating digital content.</li> </ul>  | <p><b>Software:</b> WordPress/Blogger/learning platform blogging tool or similar, GIMP, Audacity®, Microsoft Windows Movie Maker®</p> <p><b>Apps:</b> WordPress, Camera, Snapseed</p> | <p>Computers, digital cameras, audio recorders/tablets</p> |
| <p><b>5.6</b><br/><b>We are architects</b><br/>Creating a virtual space</p>                  | <ul style="list-style-type: none"> <li>• Understand the work of architects, designers and engineers working in 3D.</li> <li>• Develop familiarity with a simple CAD (computer aided design) tool.</li> <li>• Develop spatial awareness by exploring and experimenting with a 3D virtual environment.</li> <li>• Develop greater aesthetic awareness.</li> </ul>  | <ul style="list-style-type: none"> <li>• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</li> <li>• 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>   | <p><b>Software:</b> Trimble SketchUp (used for 3D modelling), Screencast-o-matic (for final screencast)</p> <p><b>Apps:</b> Home Design 3D/3dVAS</p>                                  | <p>Laptops/computers</p>                                   |