

# Computer Science Long Term Plan Year 9

## Temperance Term

| W/C                         | Week 1                                                                                                                                                                                                                                                                                                                 | Week 2 | Week 3 | Week 4 | Week 5                                                                                                                                                           | Week 6 | Week 7 | HALF TERM |
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| Area of Study               | <b>Computing systems</b>                                                                                                                                                                                                                                                                                               |        |        |        |                                                                                                                                                                  |        |        |           |
| Core Learning               | <u>Objectives:</u> <ul style="list-style-type: none"> <li>Describe the function of the computer hardware components</li> <li>Describe how the components work together to execute programs</li> <li>Be able to identify different hardware components</li> <li>To understand the basic functions of the CPU</li> </ul> |        |        |        | <u>Content:</u><br>Hardware and Internal components (CPU, memory, storage)<br>Deconstruction of computers<br>Fetch Decode Execute Cycle<br>The CPU in more depth |        |        |           |
| Opportunities for Challenge | Reconstruction of the computer systems after deconstruction, further research and questions on the Von Neumann architecture.                                                                                                                                                                                           |        |        |        |                                                                                                                                                                  |        |        |           |
| Assessment                  | Formative assessment: Through teacher observation, questioning and marked activities<br>Summative assessment: End of Unit assessment                                                                                                                                                                                   |        |        |        |                                                                                                                                                                  |        |        |           |

| W/C                         | Week 8                                                                                                                                                                                                                                                                                                                                                                                                                                         | Week 9 | Week 10 | Week 11                                                                                                                | Week 12 | Week 13 | CHRISTMAS |
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| Area of Study               | <b>Python Programming – Part I</b>                                                                                                                                                                                                                                                                                                                                                                                                             |        |         |                                                                                                                        |         |         |           |
| Core Learning               | <u>Objectives:</u> <ul style="list-style-type: none"> <li>To understand the use of python as a coding language and why it is a popular programming language – real world applications of python</li> <li>To be able to input and output data using python</li> <li>To be able to understand the importance of sequencing and selection in python</li> <li>To be able to use selection and sequencing to make simple python programs</li> </ul> |        |         | <u>Content:</u><br>Computational thinking<br>Sequencing<br>Inputs and Outputs<br>Selection<br>Murder Mystery in python |         |         |           |
| Opportunities for Challenge | More complex python coding challenges. Introducing iteration.                                                                                                                                                                                                                                                                                                                                                                                  |        |         |                                                                                                                        |         |         |           |
| Assessment                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                |        |         |                                                                                                                        |         |         |           |

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## Justice Term

| W/C                         | Week 14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Week 15 | Week 16 | Week 17                                                                                                                                                                                        | Week 18 | Week 19 | HALF TERM |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------|-----------|
| Area of Study               | <b>Is Technology Ethical?</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |         |                                                                                                                                                                                                |         |         |           |
| Core Learning               | <u>Objectives</u> <ul style="list-style-type: none"> <li>To understand how technology is used in society.</li> <li>To be able to name and explain the 3 laws associated with computing, Data Protection Act, Copyright protection act and Computer Misuse act.</li> <li>To be able to describe positive and negative effects of technology on society and the environment.</li> <li>To be able to explain what e-waste is and how it is affecting the planet.</li> <li>To be able to explain the positive effects that technology is having on the environment</li> </ul> |         |         | <u>Content:</u><br>Ethical/Unethical use of technology<br>How technology is used in the “real world”<br>E-waste<br>Positives and negative effects of technology on society and the environment |         |         |           |
| Opportunities for Challenge | Teach Computing Curriculum Explorer activities:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |         |                                                                                                                                                                                                |         |         |           |
| Assessment                  | Formative assessment: Through teacher observation, questioning and marked activities<br>Summative assessment: End of Unit assessment                                                                                                                                                                                                                                                                                                                                                                                                                                      |         |         |                                                                                                                                                                                                |         |         |           |

| W/C                         | Week 20                                                                                                                                                                                                                                     | Week 21 | Week 22 | Week 23                                                                                                                                                                                        | Week 24 | Week 25 | Easter |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------|--------|
| Area of Study               | <b>Cyber Security</b>                                                                                                                                                                                                                       |         |         |                                                                                                                                                                                                |         |         |        |
| Core Learning               | <u>Objectives:</u> <ul style="list-style-type: none"> <li>To understand what cybersecurity is</li> <li>To understand why we need cybersecurity</li> <li>To be able to identify and name various cybersecurity risks and threats.</li> </ul> |         |         | Social engineering<br>Hacking, Brute force & DDoS attacks. Computer Misuse Act. Malware Protection (Ani-malware, Firewalls, Authorisation, User permissions)<br>Creating “Scam bots” in python |         |         |        |
| Opportunities for Challenge | Teach Computing Curriculum Explorer activities:                                                                                                                                                                                             |         |         |                                                                                                                                                                                                |         |         |        |
| Assessment                  | Formative assessment: Through teacher observation, questioning and marked activities<br>Summative assessment: End of Unit assessment                                                                                                        |         |         |                                                                                                                                                                                                |         |         |        |

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## Courage Term

| W/C                         | Week 26                                                                                                                                                                                                                                                                                                                                   | Week 27 | Week 28 | Week 29                                                                                                                                                             | Week 30 | Week 31 | HALF TERM |
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| Area of Study               | <b>Python programming – Part II - Using Trinket.io</b>                                                                                                                                                                                                                                                                                    |         |         |                                                                                                                                                                     |         |         |           |
| Core Learning               | <u>Objectives:</u> <ul style="list-style-type: none"> <li>Use input, assignment and, output statements in sequence</li> <li>Use selection to control the flow of program execution</li> <li>Use iteration to control the flow of program execution</li> <li>Use the importing of libraries to increase the complexity of code.</li> </ul> |         |         | <u>Content:</u><br>Variables, assignment, lists<br>Selection (if-elif-else)<br>Iteration (while and for loops)<br>Using random<br>Arrays and Dictionaries<br>Turtle |         |         |           |
| Opportunities for Challenge | More complicated coding, introduction of functions and procedures.                                                                                                                                                                                                                                                                        |         |         |                                                                                                                                                                     |         |         |           |
| Assessment                  | Formative assessment: Through teacher observation, questioning and marked activities<br>Summative assessment: End of Unit assessment                                                                                                                                                                                                      |         |         |                                                                                                                                                                     |         |         |           |

| W/C                         | Week 32                                                                                                                                                                                                                                                                                                                                                                                                                                    | Week 33 | Week 34 | Week 35                                                                                                                                                                                                                     | Week 36 | Week 37 | HALF TERM |
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| Area of Study               | <b>Website Development</b>                                                                                                                                                                                                                                                                                                                                                                                                                 |         |         |                                                                                                                                                                                                                             |         |         |           |
| Core Learning               | <u>Objectives:</u> <ul style="list-style-type: none"> <li>To understand what primary and secondary research is</li> <li>To use secondary research to begin the website design.</li> <li>To understand what a mood board and wireframe is</li> <li>To use of moodboards and wireframes.</li> <li>To understand what the software development cycle is and use it effectively.</li> <li>To review and evaluate a finished product</li> </ul> |         |         | Learning about primary and secondary research<br>Conducting secondary research<br>Creating moodboards and wire frames<br>The software development cycle<br>Website creation using google sites<br>Reviewing and evaluation. |         |         |           |
| Opportunities for Challenge | The use of Bootstrap and HTML to add to the website design.                                                                                                                                                                                                                                                                                                                                                                                |         |         |                                                                                                                                                                                                                             |         |         |           |
| Assessment                  | Formative assessment: Through teacher observation, questioning and marked activities – reflection point halfway through the website<br>Summative assessment: End of Unit assessment based upon website project.                                                                                                                                                                                                                            |         |         |                                                                                                                                                                                                                             |         |         |           |

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