

# Computer Science Long Term Plan Year 9 2021-22

## Temperance Term

| W/C                         | Week 1   | Week 2  | Week 3   | Week 4  | Week 5 | Week 6 | Week 7 | HALF TERM |
|-----------------------------|--|---|--|---|--------|--------|--------|-----------|
| Area of Study               | <b>Recap</b>   | <b>Understanding Computers</b>  |  |   |        |        |        |           |
| Core Learning               | <b>Objectives:</b><br>Understand drives and cloud storage<br>Organise files in folders<br><br><b>Content:</b><br>File management | <b>Objectives:</b><br>Recall the main parts of a computer system<br>Describe the function of the main components<br><br><b>Content:</b><br>Input & output devices / secondary storage devices<br>CPU / Memory | <b>Objectives:</b><br>Describe the F-D-E cycle<br><br><b>Content:</b><br>Fetch – Decode -Execute cycle<br>Binary representation (8- bit) | <b>Objectives:</b><br>Describe C_S and P-P network architectures<br>Compare network architectures<br><br><b>Content:</b><br>Computer networks architectures<br>Peer Review / Improvements |        |        |        |           |
| Opportunities for Challenge |  | Less common devices<br>Cores and cache  | Well-designed poster with detailed information<br>Adding binary numbers together   | Suggest suitable topologies/architectures for different scenarios   |        |        |        |           |
| Assessment                  |  | Questioning / Task completion   | Questioning / Task completion  | Socratic Test   |        |        |        |           |

| W/C                         | Week 8  | Week 9   | Week 10  | Week 11 | Week 12 | Week 13 | CHRISTMAS |
|-----------------------------|---|--|--|---------|---------|---------|-----------|
| Area of Study               | <b>Small Basic Project – Lemonade Stand or Lunar Lander</b>   |  |  |         |         |         |           |
| Core Learning               | <b>Objectives:</b><br>Decompose problems<br>Recall and use commands<br><br><b>Content:</b><br>Variables, constants and assignment<br>Input and output<br>Calculations | <b>Objectives:</b><br>Work methodically<br>Use and apply programming techniques<br><br><b>Content:</b><br>Selection (making decisions)<br>Iteration (repeating instructions) | <b>Objectives:</b><br>Identify and resolve errors<br>Evaluate solutions<br><br><b>Content:</b><br>Subprograms<br>Peer Review |         |         |         |           |
| Opportunities for Challenge | BIDMAS<br><br>Modulo operator   | Multiple conditions (including AND OR)<br>Conditional and nested loops   | Parameters / arguments   |         |         |         |           |
| Assessment                  | Questioning / Task completion   | Questioning / Task completion  | Socratic Test  |         |         |         |           |

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| <b>W/C</b>                         | Week 14  | Week 15 | Week 16  | Week 17 | Week 18   | Week 19 | <b>HALF TERM</b> |
|------------------------------------|--|---------|--|---------|---|---------|------------------|
| <b>Area of Study</b>               | <b>Mobile Phone App</b>  |         |  |         |   |         |                  |
| <b>Core Learning</b>               | <p><b>Objectives:</b><br/>Describe event driven programming<br/>Create simple app with help</p> <p><b>Content:</b><br/>Event driven programming<br/>GUI design, objects (elements), properties and (event) methods</p> |         | <p><b>Objectives:</b><br/>Design and implement a simple app with help<br/>Design and implement a mobile app independently</p> <p><b>Content:</b><br/>Design and implementation<br/>Objects, properties and Methods</p> |         | <p><b>Objectives:</b><br/>Suggest design improvements<br/>Make suitable improvements</p> <p><b>Content:</b><br/>Testing programs<br/>Evaluation and improving</p> |         |                  |
| <b>Opportunities for Challenge</b> | Customise user interface   |         | More complex app using greater variety of elements and program instructions.   |         | More refined improvements.  |         |                  |
| <b>Assessment</b>                  | Questioning / Task completion  |         | Questioning / Task completion  |         | Socratic Test   |         |                  |

| <b>W/C</b>                         | Week 20   | Week 21 | Week 22   | Week 23 | Week 24   | Week 25 | <b>Easter</b> |
|------------------------------------|---|---------|---|---------|---|---------|---------------|
| <b>Area of Study</b>               | <b>Python Programming – Cryptography</b>  |         |   |         |   |         |               |
| <b>Core Learning</b>               | <p><b>Objectives:</b><br/>Recall flowchart symbols<br/>Use a flowchart to construct a simple program</p> <p><b>Content:</b><br/>Atbash Cipher Algorithm</p> |         | <p><b>Objectives:</b><br/>Convert flowchart to pseudocode<br/>Use a flowchart/algorithms to construct a programs</p> <p><b>Content:</b><br/>Rail Fence Cipher Algorithm</p> |         | <p><b>Objectives:</b><br/>Write an algorithm as flowchart<br/>Use a flowchart/algorithm to construct a programs</p> <p><b>Content:</b><br/>Caesar Shift (Substitution Cipher)</p> |         |               |
| <b>Opportunities for Challenge</b> | Devise own cipher algorithm/program   |         | Devise own cipher algorithm/program   |         | Devise own cipher algorithm/program   |         |               |

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| <b>Assessment</b> | Questioning / Task completion | Questioning / Task completion | Socratic Test |  |