

## Year 10

| Timing                   | Unit Title                      | Key Question                          | Knowledge                                                                                                                                                                                                                                                                               | Assessing Understanding                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| Autumn<br>Half<br>Term 1 | <b>P1 – Basics</b>              | How do I write programs in real code? | <ul style="list-style-type: none"> <li>• Algorithmic thinking</li> <li>• Delphi basics</li> <li>• Selection – IF and CASE</li> </ul>                                                                                                                                                    | <p><b>How understanding is assessed</b> :</p> <ul style="list-style-type: none"> <li>• A series of homeworks where girls submit their programs for checking</li> <li>• Progress is monitored and recorded during lessons</li> </ul> <p><b>Skills</b></p> <ul style="list-style-type: none"> <li>• Basic Delphi syntax</li> <li>• Use of IF and CASE</li> </ul> <p><b>Assessment point information</b><br/>Homework marks will feed into an Assessment Point. Progress data is collected and stored each lesson, along with comments on individuals.</p> |
|                          | <b>T1 – Data Representation</b> | How do computers store data?          | <ul style="list-style-type: none"> <li>• Binary numbers and conversion to and from denary</li> <li>• Hexadecimal numbers and why they are useful</li> <li>• Storage of sound files and file types</li> <li>• Concept of Sampling</li> <li>• Storage of images and file types</li> </ul> | <p><b>How understanding is assessed</b> :</p> <ul style="list-style-type: none"> <li>• Binary and simple data representation is assessed using online tests</li> <li>• Overall understanding is assessed with a formal test.</li> </ul> <p><b>Skills</b></p> <ul style="list-style-type: none"> <li>• Conversion of data from one representation to another</li> </ul> <p><b>Assessment point information</b><br/>All three test marks feed into an Assessment Point.</p>                                                                               |

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| Autumn<br>Half<br>Term 1 | <b>P2 –<br/>Manipulating<br/>Data</b> | How do I work<br>with numbers and<br>strings?   | <ul style="list-style-type: none"> <li>String Functions : <ul style="list-style-type: none"> <li>Leftstr</li> <li>rightstr</li> <li>midstr</li> <li>[] brackets</li> <li>Length</li> </ul> </li> <li>Numeric functions : <ul style="list-style-type: none"> <li>MOD</li> <li>DIV</li> <li>ROUND</li> <li>TRUNC</li> </ul> </li> <li>Dry running</li> </ul> | <p><b>How understanding is assessed</b>ed :</p> <p>A final assessed exercise tests all of these new functions. Girls' progress is also monitored and recorded in lessons</p> <p><b>Skills</b></p> <ul style="list-style-type: none"> <li>Ability to solve problems using string functions</li> <li>Ability to solve problems using numeric functions</li> <li>Dry running – can handle simple code</li> </ul> <p><b>Assessment point information</b></p> <p>Marks from the final handing of the assessed exercise and BM (Behaviour Management) data feed into an Assessment Point.</p> |
| Autumn<br>Half<br>Term 2 | <b>T2 - Software</b>                  | What are the<br>different types of<br>Software? | <ul style="list-style-type: none"> <li>System Software – concept</li> <li>Utility programs – concept and examples</li> <li>OS – functions and features</li> </ul>                                                                                                                                                                                          | <p><b>How understanding is assessed</b> :</p> <ul style="list-style-type: none"> <li>Students present their findings to the group</li> </ul> <p><b>Skills</b></p> <ul style="list-style-type: none"> <li>Presentation skills</li> <li>Team-working skills</li> </ul> <p><b>Assessment point information</b></p> <p>BM data will be collected on their progress while working and when giving their final presentations. This can feed in to an Assessment Point</p>                                                                                                                     |

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| Autumn<br>Half<br>Term 2 | <b>P3 - Loops</b>              | How do I make use of repeating code? | <ul style="list-style-type: none"> <li>• For-do loops</li> <li>• Do-while loops</li> <li>• While loops</li> <li>• Debugging techniques</li> </ul>                                                                                       | <p><b>How understanding is assessed :</b></p> <ul style="list-style-type: none"> <li>• Dry Running homeworks to check understanding</li> <li>• Handling of programming exercises</li> <li>• Final assessed exercise covering all types of loop</li> </ul> <p><b>Skills</b></p> <ul style="list-style-type: none"> <li>• Can use all three types of loop</li> <li>• Understands when it appropriate to use of the three types</li> </ul> <p><b>Assessment point information</b><br/>The final assessed exercise feeds into an Assessment Point, as do the marks from the smaller homeworks</p> |
| Spring<br>Half<br>Term 1 | <b>T3 – Memory and Storage</b> | Why do you need memory and storage?  | <ul style="list-style-type: none"> <li>• RAM and ROM</li> <li>• Cache memory</li> <li>• Need of Secondary Storage</li> <li>• Types of secondary storage</li> <li>• Comparative usage of different types of secondary storage</li> </ul> | <p><b>How understanding is assessed :</b></p> <ul style="list-style-type: none"> <li>• Girls report their findings in groups to the whole class</li> <li>• Kahoot Quiz</li> <li>• Homework to test knowledge of storage devices</li> </ul> <p><b>Skills</b></p> <ul style="list-style-type: none"> <li>• Ability to specify sensibly memory and secondary storage for a given situation</li> </ul> <p><b>Assessment point information</b><br/>The homework feeds into an Assessment point, and data is collected when groups are reporting, which can also be used as part of the AP.</p>     |

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| Spring<br>Half<br>Term 1 | <b>P4 - Arrays</b>                         | How can we store larger amounts of data efficiently? | <ul style="list-style-type: none"> <li>• Array concept</li> <li>• Types of array</li> <li>• Accessing and searching arrays</li> <li>• Sorting algorithms</li> <li>• 2D arrays</li> </ul>                                      | <p><b>How understanding is assessed :</b></p> <ul style="list-style-type: none"> <li>• Dry Running exercises</li> <li>• Final assessed program</li> <li>• Observation and recording of progress in lessons</li> </ul> <p><b>Skills</b></p> <ul style="list-style-type: none"> <li>• Array programming</li> <li>• Searching arrays in different ways</li> <li>• Sorting arrays – single or multiple</li> </ul> <p><b>Assessment point information</b><br/>The final assessed program feeds into an assessment point, as can the interim Dry Running marks and BM data from lessons</p> |
| Spring<br>Half<br>Term 1 | <b>T4 – Systems Architecture and Logic</b> | How do computers actually work?                      | <ul style="list-style-type: none"> <li>• The CPU and its component parts</li> <li>• Registers and the F/E cycle</li> <li>• Assembly language using LMC</li> <li>• Logic gates and diagrams</li> <li>• Truth Tables</li> </ul> | <p><b>How understanding is assessed :</b></p> <ul style="list-style-type: none"> <li>• Formal homeworks test understanding of both of these sections</li> </ul> <p><b>Skills</b></p> <ul style="list-style-type: none"> <li>• Ability to write and understand low level code</li> <li>• Ability to draw up truth tables for simple gate combinations</li> </ul> <p><b>Assessment point information</b><br/>Homework marks contribute to an Assessment Point</p>                                                                                                                       |

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| Spring<br>Half<br>Term 2 | <b>T5 – Networks<br/>and Internet</b>         | How and why do<br>we connect<br>computers<br>together?           | <ul style="list-style-type: none"> <li>• Network hardware</li> <li>• Types of network</li> <li>• Internet and Packet Switching</li> <li>• Protocols</li> <li>• Wire and wireless networks</li> </ul> | <p><b>How understanding is assessed :</b></p> <ul style="list-style-type: none"> <li>• A test exercise is used to check knowledge across the whole unit</li> </ul> <p><b>Skills</b></p> <ul style="list-style-type: none"> <li>• Ability to 'tell the story' of how the protocol stack works</li> </ul> <p><b>Assessment point information</b><br/>The test exercise feeds into an Assessment Point</p>                                                                                 |
| Spring<br>Half<br>Term 2 | <b>P5 – File<br/>Handling</b>                 | How do we store<br>data from<br>programs and<br>access it later? | <ul style="list-style-type: none"> <li>• File handling keywords</li> <li>• Loading from files</li> <li>• Saving to files</li> </ul>                                                                  | <p><b>How understanding is assessed :</b></p> <ul style="list-style-type: none"> <li>• Progress is monitored and captured during lessons</li> <li>• An assessed program is used to check students' ability to load and save to file</li> </ul> <p><b>Skills</b></p> <ul style="list-style-type: none"> <li>• Delphi file handling</li> </ul> <p><b>Assessment point information</b><br/>The final assessed program contributes to an Assessment Point, as does BM data from lessons</p> |
| Summer<br>Half<br>Term 1 | <b>P6 –<br/>Subroutines and<br/>2D arrays</b> | How do I break a<br>program into<br>manageable<br>chunks?        | <ul style="list-style-type: none"> <li>• Flag variables</li> <li>• 2d Array handling</li> <li>• Procedures and procedure calls</li> <li>• Functions</li> </ul>                                       | <p><b>How understanding is assessed :</b></p> <ul style="list-style-type: none"> <li>• A series of game programs is completed and extended by students and progress in this monitored</li> </ul> <p><b>Skills</b></p> <ul style="list-style-type: none"> <li>• 2D array programming</li> <li>• Calling and addition of procedures</li> <li>• Ability to turn a brief into program code</li> </ul>                                                                                       |

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| Summer Half Term 2 | <b>T6 - ELCEC</b>             | What are the legal and other societal ramifications of Computing? | <ul style="list-style-type: none"> <li>• The five Acts</li> <li>• Examples of moral and ethical issues which arise</li> </ul>              | <b>How understanding is assessed :</b> <ul style="list-style-type: none"> <li>• Short essays</li> <li>• Homework exercises</li> </ul> <b>Skills</b> <ul style="list-style-type: none"> <li>• Understanding of the five Acts</li> <li>• Empathy with different perspectives in real-life situations</li> </ul> <b>Assessment point information</b><br>Marks gained are fed into the Summer AP              |
| Summer Half Term 2 | <b>P7 – Programming Games</b> | How to write a program with multiple sections                     | <ul style="list-style-type: none"> <li>• 2D arrays in practice</li> <li>• Parameter passing</li> <li>• Procedures and Functions</li> </ul> | <b>How understanding is assesseded :</b> <ul style="list-style-type: none"> <li>• Comprehension exercises</li> <li>• Adapting existing programs</li> </ul> <b>Skills</b> <ul style="list-style-type: none"> <li>• 2D Arrays</li> <li>• Writing new Methods</li> <li>• Use of reference and value parameters</li> </ul> <b>Assessment point information</b><br>This work follows the last Assessment Point |