

Subject: Computer Science	Areas Covered	What students should understand/be able to demonstrate	Available resources to consolidate areas of weakness
Year 7	<p>Web development using HTML and CSS</p> <p>Programming fundamentals using Python</p>	<p>Be able to develop a multi-page website with links, images and appropriate design layout for contents</p> <p>Be able to understand and to apply the key concepts of programming:</p> <ol style="list-style-type: none"> <li>1. Variables</li> <li>2. Basics operations such as assignment, mathematical operations, comparison operations</li> <li>3. For loops and while loops</li> <li>4. If statement/conditionals</li> <li>5. functions</li> </ol>	<p><a href="https://www.bournetocode.com/projects/7-CS-webDesign/index.html">https://www.bournetocode.com/projects/7-CS-webDesign/index.html</a></p> <p><a href="https://codehs.com/go/76168">https://codehs.com/go/76168</a></p> <p><a href="https://www.bournetocode.com/projects/7-CS-Turing/index.html">https://www.bournetocode.com/projects/7-CS-Turing/index.html</a></p> <p><a href="https://codehs.com/go/C66D5">https://codehs.com/go/C66D5</a></p> <p><a href="https://blockly.games/">https://blockly.games/</a></p>
Year 8	<p>Programming and problem-solving fundamentals using Python</p>	<p>Be able to understand and to apply the key concepts of computational thinking.</p> <ol style="list-style-type: none"> <li>1. Decomposition by breaking down complex problems into small, solvable problems</li> <li>2. Pattern recognition by identifying recurring steps</li> <li>3. Logical thinking</li> </ol> <p>Be able to understand and to apply the key concepts of programming:</p> <ol style="list-style-type: none"> <li>1. Variables</li> <li>2. Basics operations such as assignment, mathematical operations, comparison and logic operations</li> <li>3. For loops and while loops</li> <li>4. If statement/conditionals</li> <li>5. functions</li> </ol>	<p><a href="https://www.bournetocode.com/projects/8-CS-ProblemSolving/">https://www.bournetocode.com/projects/8-CS-ProblemSolving/</a></p> <p><a href="https://www.bournetocode.com/projects/8-CS-Turtles/index.html">https://www.bournetocode.com/projects/8-CS-Turtles/index.html</a></p> <p><a href="https://codehs.com/go/836DC">https://codehs.com/go/836DC</a></p> <p><a href="https://blockly.games/">https://blockly.games/</a></p>
Year 9	<p>What is Computing?</p>	<p>Be able to understand what Computing as a field of knowledge is.</p> <p>Be able to explain how images and sound is represented on a Computer.</p>	<p><a href="https://codehs.com/library/course/2343/module/3446">https://codehs.com/library/course/2343/module/3446</a></p>
Year 10	<p>Programming and project management</p>	<p>Be able to take a project brief explaining a series of problems that need to be solved and use</p>	<p><a href="https://bournetocode.com/projects/GCSE-Practical-Programming/pages/CA-Writeup.html">https://bournetocode.com/projects/GCSE-Practical-Programming/pages/CA-Writeup.html</a></p>

		<p>abstraction and decomposition to break the problems down and solved them one by one.</p> <p>Be able to program in python a solution to an NEA project task that meets the requirements.</p> <p>Be able to create a project overview document that explains how you solved a problem from beginning to end while including all sections that have been covered in the Teams assignments.</p>	<p>Read through the files in the “Files” tab in Teams that show an exemplar project write-up as well as code solutions.</p> <p>Check through the history of assignments that include details on everything that has been covered during the work from home period.</p>
Year 12	NEA project research and prototyping	<p>Students required to conduct research and read the exam board guidelines to propose a project idea by answering those questions:</p> <ol style="list-style-type: none"> <li>1. What is your idea?</li> <li>2. what makes your idea complex enough for A-level worthy?</li> <li>3. How will you deliver the complexity?</li> <li>4. Who is your end user?</li> <li>5. What programming languages do you intend to use?</li> <li>6. Do you need to use a database or other data store?</li> <li>7. web based / phone app / desktop?</li> <li>8. What do you need to learn?</li> <li>9. How do you go about learning the skills needed for your project?</li> </ol> <p>Start prototyping their proposed project idea proved by the teacher:</p> <ol style="list-style-type: none"> <li>1. creating a basic version of the solution to their problems with some basic components investigated and implemented</li> <li>2. learning new skills and concepts that will be part of the project</li> <li>3. investigating and adopting project solution approaches to meet the complexity requirements to achieve the highest possible technical grades</li> </ol>	<p>For project ideas:  <a href="https://en.wikibooks.org/wiki/A-level_Computing/AQA/The_Computing_Practical_Project">https://en.wikibooks.org/wiki/A-level_Computing/AQA/The_Computing_Practical_Project</a></p> <p>For marking scheme and guidelines:  <a href="https://www.bournetocode.com/projects/AQA-A-NEA/index.html">https://www.bournetocode.com/projects/AQA-A-NEA/index.html</a></p> <p>For learning oop using Python  <a href="https://realpython.com/python3-object-oriented-programming/">https://realpython.com/python3-object-oriented-programming/</a>  <a href="https://www.programiz.com/python-programming/object-oriented-programming">https://www.programiz.com/python-programming/object-oriented-programming</a>  <a href="https://python.swaroopch.com/">https://python.swaroopch.com/</a>  <a href="https://www.youtube.com/watch?v=ZDa-Z5JzLYM">https://www.youtube.com/watch?v=ZDa-Z5JzLYM</a></p> <p>For past project with comments:  <a href="https://foldr.bourne-grammar.lincs.sch.uk/home/files/Open%20Drive/Computing/AQA-NEA">https://foldr.bourne-grammar.lincs.sch.uk/home/files/Open%20Drive/Computing/AQA-NEA</a></p>