

## CURRICULUM SUMMARY - Computing

### YEAR 7 - Computing

TERM 1	TERM 2	TERM 3
<b>CONTENT</b> <ul style="list-style-type: none"> <li>E-Safety</li> <li>Binary</li> </ul>	<b>CONTENT</b> <ul style="list-style-type: none"> <li>Spreadsheets</li> <li>Storage devices and computers</li> </ul>	<b>CONTENT</b> <ul style="list-style-type: none"> <li>Control Systems</li> <li>Algorithmic thinking</li> </ul>
<b>ASSESSMENTS</b> <ul style="list-style-type: none"> <li>Presentation</li> <li>Online testing</li> </ul>	<b>ASSESSMENTS</b> <ul style="list-style-type: none"> <li>Online testing</li> </ul>	<b>ASSESSMENTS</b> <ul style="list-style-type: none"> <li>Online testing</li> </ul>
<b>HOW PARENTS CAN SUPPORT LEARNING</b> <ul style="list-style-type: none"> <li>Discussion around E-safety issues</li> <li>Check homework is completed</li> <li>Support pupils with written work</li> <li>Rehearse presentations</li> </ul>	<b>HOW PARENTS CAN SUPPORT LEARNING</b> <ul style="list-style-type: none"> <li>Check homework is completed</li> <li>Support pupils with written work</li> </ul>	<b>HOW PARENTS CAN SUPPORT LEARNING</b> <ul style="list-style-type: none"> <li>Check homework is completed</li> <li>Support pupils with written work</li> </ul>

### YEAR 8 - Computing

TERM 1	TERM 2	TERM 3
<b>CONTENT</b> <ul style="list-style-type: none"> <li>Block based programming</li> </ul>	<b>CONTENT</b> <ul style="list-style-type: none"> <li>Programming with micro:bit – text based programming</li> </ul>	<b>CONTENT</b> <ul style="list-style-type: none"> <li>Programming in Python</li> </ul>
<b>ASSESSMENTS</b> <ul style="list-style-type: none"> <li>Evaluation of programme</li> <li>Evidence</li> <li>Online testing</li> </ul>	<b>ASSESSMENTS</b> <ul style="list-style-type: none"> <li>Evaluation of programme</li> <li>Evidence</li> <li>Online testing</li> </ul>	<b>ASSESSMENTS</b> <ul style="list-style-type: none"> <li>Evaluation of programme</li> <li>Evidence</li> <li>Online testing</li> </ul>
<b>HOW PARENTS CAN SUPPORT LEARNING</b> <ul style="list-style-type: none"> <li>Check homework is completed</li> <li>Support pupils with written work</li> </ul>	<b>HOW PARENTS CAN SUPPORT LEARNING</b> <ul style="list-style-type: none"> <li>Check homework is completed</li> <li>Support pupils with written work</li> </ul>	<b>HOW PARENTS CAN SUPPORT LEARNING</b> <ul style="list-style-type: none"> <li>Check homework is completed</li> <li>Support pupils with written work</li> </ul>

**YEAR 9 – Computer Science GCSE AQA 8520**

TERM 1	TERM 2	TERM 3
<p><b>CONTENT</b></p> <ul style="list-style-type: none"> <li>• Computational thinking</li> <li>• Algorithms</li> <li>• Flowcharts</li> <li>• Pseudocode</li> <li>• Programming literacy</li> <li>• Visual vs text based programming</li> <li>• Boolean and Logic gates</li> </ul>	<p><b>CONTENT</b></p> <ul style="list-style-type: none"> <li>• Algorithms</li> <li>• Flowcharts</li> <li>• Pseudocode</li> <li>• Programming literacy</li> <li>• ROM and RAM</li> <li>• Variables and Constants</li> <li>• Subroutines</li> </ul>	<p><b>CONTENT</b></p> <ul style="list-style-type: none"> <li>• Computational thinking</li> <li>• Algorithms</li> <li>• Flowcharts</li> <li>• Pseudocode</li> <li>• Programming literacy</li> <li>• Logic circuits</li> <li>• ROM and RAM</li> <li>• Different programming languages</li> <li>• Binary</li> <li>• Hexadecimal</li> </ul>
<p><b>ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• Online tests</li> <li>• Functionality checks of programmes (does it work and do what it was supposed to do).</li> <li>• Peer assessment</li> </ul>	<p><b>ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• Online tests</li> <li>• Functionality checks of programmes (does it work and do what it was supposed to do).</li> <li>• Peer assessment</li> </ul>	<p><b>ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• Online tests</li> <li>• Functionality checks of programmes (does it work and do what it was supposed to do).</li> <li>• Peer assessment</li> </ul>
<p><b>HOW PARENTS CAN SUPPORT LEARNING</b></p> <ul style="list-style-type: none"> <li>• Check homework is completed</li> <li>• Support pupils with written work</li> <li>• Ensure pupils have access to a computer with Python installed and web access, so online resources can be used.</li> <li>• Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.</li> </ul>	<p><b>HOW PARENTS CAN SUPPORT LEARNING</b></p> <ul style="list-style-type: none"> <li>• Check homework is completed</li> <li>• Support pupils with written work</li> <li>• Ensure pupils have access to a computer with Python installed and web access, so online resources can be used.</li> <li>• Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.</li> </ul>	<p><b>HOW PARENTS CAN SUPPORT LEARNING</b></p> <ul style="list-style-type: none"> <li>• Check homework is completed</li> <li>• Support pupils with written work</li> <li>• Ensure pupils have access to a computer with Python installed and web access, so online resources can be used.</li> <li>• Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.</li> </ul>

YEAR 10 – Computer Science GCSE AQA 8520

TERM 1	TERM 2	TERM 3
<p><b>CONTENT</b></p> <ul style="list-style-type: none"> <li>• Machine code</li> <li>• High and low level languages</li> <li>• Data representation</li> <li>• Data compression</li> <li>• Data types</li> <li>• Algorithms</li> <li>• Flowcharts</li> <li>• Pseudocode</li> <li>• Programming literacy</li> </ul>	<p><b>CONTENT</b></p> <ul style="list-style-type: none"> <li>• Data structures</li> <li>• Trees and Huffman coding</li> <li>• Understanding search and sort algorithms</li> <li>• Algorithm efficiency</li> <li>• Testing code</li> <li>• Computer system’s architecture</li> <li>• Von Neumann</li> <li>• Networks</li> <li>• Embedded systems</li> <li>• Memory ROM &amp; RAM</li> <li>• Secondary storage</li> <li>• Flowcharts</li> <li>• Pseudocode</li> <li>• Programming literacy</li> </ul>	<p><b>CONTENT</b></p> <ul style="list-style-type: none"> <li>• Fetch-execute cycle</li> <li>• Encryption</li> <li>• System security</li> <li>• Social engineering and cyber security</li> <li>• Ethics, the law and environment</li> <li>• Software and its development</li> <li>• Algorithms</li> <li>• Flowcharts</li> <li>• Pseudocode</li> <li>• Programming literacy</li> <li>• Databases</li> </ul>
<p><b>ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• Online tests</li> <li>• Functionality checks of programmes (does it work and do what it was supposed to do).</li> <li>• Peer assessment</li> </ul>	<p><b>ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• Online tests</li> <li>• Functionality checks of programmes (does it work and do what it was supposed to do).</li> <li>• Peer assessment</li> </ul>	<p><b>ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• Online tests</li> <li>• Functionality checks of programmes (does it work and do what it was supposed to do).</li> <li>• Peer assessment</li> </ul>
<p><b>HOW PARENTS CAN SUPPORT LEARNING</b></p> <ul style="list-style-type: none"> <li>• Check homework is completed</li> <li>• Support pupils with written work</li> <li>• Ensure pupils have access to a computer with Python installed and web access, so online resources can be used.</li> <li>• Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.</li> </ul>	<p><b>HOW PARENTS CAN SUPPORT LEARNING</b></p> <ul style="list-style-type: none"> <li>• Check homework is completed</li> <li>• Support pupils with written work</li> <li>• Ensure pupils have access to a computer with Python installed and web access, so online resources can be used.</li> <li>• Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.</li> </ul>	<p><b>HOW PARENTS CAN SUPPORT LEARNING</b></p> <ul style="list-style-type: none"> <li>• Check homework is completed</li> <li>• Support pupils with written work</li> <li>• Ensure pupils have access to a computer with Python installed and web access, so online resources can be used.</li> <li>• Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.</li> </ul>

## YEAR 11 – Computer Science GCSE AQA 8520

TERM 1	TERM 2	TERM 3
<b>CONTENT</b> <ul style="list-style-type: none"> <li>• Preparation for undertaking (NEA) Non-examined element of the course.</li> <li>• Work on NEA</li> <li>• Algorithms</li> <li>• Flowcharts</li> <li>• Pseudocode</li> <li>• Programming literacy</li> </ul>	<b>CONTENT</b> <ul style="list-style-type: none"> <li>• Revision and preparation for final exam.</li> <li>• Consolidation of programming knowledge.</li> <li>• Algorithms</li> <li>• Flowcharts</li> <li>• Pseudocode</li> <li>• Programming literacy</li> </ul>	<b>CONTENT</b> <ul style="list-style-type: none"> <li>• Preparation for final exam</li> </ul>
<b>ASSESSMENTS</b> <ul style="list-style-type: none"> <li>• Online tests</li> <li>• Functionality checks of programmes (does it work and do what it was supposed to do).</li> <li>• Peer assessment</li> </ul>	<b>ASSESSMENTS</b> <ul style="list-style-type: none"> <li>• Online tests</li> <li>• Functionality checks of programmes (does it work and do what it was supposed to do).</li> <li>• Peer assessment</li> </ul>	<b>ASSESSMENTS</b> <ul style="list-style-type: none"> <li>• Online tests</li> <li>• Functionality checks of programmes (does it work and do what it was supposed to do).</li> <li>• Peer assessment</li> </ul>
<b>HOW PARENTS CAN SUPPORT LEARNING</b> <ul style="list-style-type: none"> <li>• Check homework is completed</li> <li>• Support pupils with written work</li> <li>• Ensure pupils have access to a computer with Python installed and web access, so online resources can be used.</li> <li>• Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.</li> </ul>	<b>HOW PARENTS CAN SUPPORT LEARNING</b> <ul style="list-style-type: none"> <li>• Check homework is completed</li> <li>• Support pupils with written work</li> <li>• Ensure pupils have access to a computer with Python installed and web access, so online resources can be used.</li> <li>• Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.</li> </ul>	<b>HOW PARENTS CAN SUPPORT LEARNING</b> <ul style="list-style-type: none"> <li>• Check homework is completed</li> <li>• Support pupils with written work</li> <li>• Ensure pupils have access to a computer with Python installed and web access, so online resources can be used.</li> <li>• Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.</li> </ul>

YEAR 12 – Computer Science A-Level AQA 7517

TERM 1	TERM 2	TERM 3
<p><b>CONTENT</b></p> <ul style="list-style-type: none"> <li>• Programming literacy</li> <li>• Algorithms</li> <li>• Flowcharts</li> <li>• Pseudocode</li> <li>• Theory of computation</li> <li>• Testing</li> <li>• Finite state machines</li> <li>• Data representation</li> <li>• Data compression and encryption</li> <li>• Hardware and Software</li> <li>• Language classification</li> <li>• Boolean logic</li> <li>• Boolean algebra</li> </ul>	<p><b>CONTENT</b></p> <ul style="list-style-type: none"> <li>• Programming literacy</li> <li>• Computer organisation and architecture</li> <li>• The processor instruction set</li> <li>• Assembly language</li> <li>• Input and output devices</li> <li>• Storage devices</li> <li>• Communication technology and consequences</li> <li>• Network topology</li> <li>• Wireless networking</li> <li>• Communication and privacy</li> <li>• Social, legal and cultural issues</li> <li>• Data structures</li> <li>• Queues</li> <li>• Lists</li> <li>• Stacks</li> <li>• Hash tables</li> </ul>	<p><b>CONTENT</b></p> <ul style="list-style-type: none"> <li>• Programming literacy</li> <li>• Graphs</li> <li>• Trees</li> <li>• Vectors</li> <li>• Recursive algorithms</li> <li>• Big-O notation</li> <li>• Searching and sorting</li> <li>• Graph traversal algorithms</li> <li>• Optimisation algorithms</li> <li>• Limits of computation</li> <li>• Preparation for year 13 project</li> </ul>
<p><b>ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• Online tests</li> <li>• Functionality checks of programmes (does it work and do what it was supposed to do).</li> <li>• Peer assessment</li> </ul>	<p><b>ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• Online tests</li> <li>• Functionality checks of programmes (does it work and do what it was supposed to do).</li> <li>• Peer assessment</li> </ul>	<p><b>ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• Online tests</li> <li>• Functionality checks of programmes (does it work and do what it was supposed to do).</li> <li>• Peer assessment</li> <li>• Practice papers</li> </ul>
<p><b>HOW PARENTS CAN SUPPORT LEARNING</b></p> <ul style="list-style-type: none"> <li>• Check homework is completed</li> <li>• Ensure pupils have access to a computer with Python installed and web access, so online resources can be used.</li> <li>• Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.</li> </ul>	<p><b>HOW PARENTS CAN SUPPORT LEARNING</b></p> <ul style="list-style-type: none"> <li>• Check homework is completed</li> <li>• Ensure pupils have access to a computer with Python installed and web access, so online resources can be used.</li> <li>• Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.</li> </ul>	<p><b>HOW PARENTS CAN SUPPORT LEARNING</b></p> <ul style="list-style-type: none"> <li>• Check homework is completed</li> <li>• Ensure pupils have access to a computer with Python installed and web access, so online resources can be used.</li> <li>• Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.</li> </ul>

## YEAR 13 – Computer Science A-Level AQA 7517

TERM 1	TERM 2	TERM 3
<p><b>CONTENT</b></p> <ul style="list-style-type: none"> <li>• Programming literacy</li> <li>• Programming project and submission of NEA</li> <li>• Regular languages</li> <li>• Mealy machines</li> <li>• Sets</li> <li>• Regular expressions</li> <li>• Turing machine</li> <li>• Backus-Naur form</li> <li>• Reverse Polish notation</li> <li>• Structure of the Internet</li> <li>• Packet switching and routers</li> <li>• Internet security</li> <li>• TCP IP Standard application layer protocols</li> <li>• IP addresses</li> <li>• Client server model</li> </ul>	<p><b>CONTENT</b></p> <ul style="list-style-type: none"> <li>• Programming literacy</li> <li>• Databases and software development</li> <li>• Entity relationship modelling</li> <li>• Relational databases and normalisation</li> <li>• Introduction to SQL</li> <li>• Defining and updating tables using SQL</li> <li>• Systematic approach to problem solving</li> <li>• Object oriented and functional programming</li> <li>• OOP Design principles</li> <li>• Big data</li> </ul>	<p><b>CONTENT</b></p> <ul style="list-style-type: none"> <li>• Programming literacy</li> <li>• Preparation for exams</li> </ul>
<p><b>ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• Online tests</li> <li>• Functionality checks of programmes (does it work and do what it was supposed to do).</li> <li>• Peer assessment</li> <li>• Practice papers</li> </ul>	<p><b>ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• Online tests</li> <li>• Functionality checks of programmes (does it work and do what it was supposed to do).</li> <li>• Peer assessment</li> <li>• Practice papers</li> </ul>	<p><b>ASSESSMENTS</b></p> <ul style="list-style-type: none"> <li>• Online tests</li> <li>• Functionality checks of programmes (does it work and do what it was supposed to do).</li> <li>• Peer assessment</li> <li>• Practice papers</li> </ul>
<p><b>HOW PARENTS CAN SUPPORT LEARNING</b></p> <ul style="list-style-type: none"> <li>• Check homework is completed</li> <li>• Ensure pupils have access to a computer with Python installed and web access, so online resources can be used.</li> <li>• Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.</li> </ul>	<p><b>HOW PARENTS CAN SUPPORT LEARNING</b></p> <ul style="list-style-type: none"> <li>• Check homework is completed</li> <li>• Ensure pupils have access to a computer with Python installed and web access, so online resources can be used.</li> <li>• Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.</li> </ul>	<p><b>HOW PARENTS CAN SUPPORT LEARNING</b></p> <ul style="list-style-type: none"> <li>• Check homework is completed</li> <li>• Ensure pupils have access to a computer with Python installed and web access, so online resources can be used.</li> <li>• Give pupils encouragement to get past the inevitable struggles and failures inherent in programming.</li> </ul>