**Exam Board:**    AQA
**Qualification:**    GCSE Computing
**Assessment Information:**    2 Exams, 2hours and 1hour 45minutes
Link to official specification

**Department Information:**
*Computing is taught to all KS3 students. Year 7 & 8 have one lesson a week and Year 9 have 3 lessons over a two-week period.*
*Computing is chosen as an Option for both AQA GCSE and AQA A level.*
*All lessons are taught by specialist teachers.*

**ACHIEVE in the curriculum:**
*Students are expected to be ambitious during their GCSE course. They will have opportunities to collaborate on tasks with their peers. In addition, students can demonstrate their integrity, endurance and versatility particularly when it comes to challenging topics e.g. programming.*
*Providing revision resources where needed.*

**Curriculum Aims & Intent:**
*The aim is for students to understand and apply the fundamental principles and concepts of Computer Science, including analysing and solving problems through practical experience by designing, writing and debugging programs.*

**Resources:**
*PG Online resources, AQA resources, the internet, GCSE Pods, laptops/computers.*
https://www.bbc.co.uk/bitesize/examspecs/zkwsjhv
https://studyrocket.co.uk/revision/gcse-computer-science-aqa
https://www.teach-ict.com/v/GCSE_Computing/AQA_8525/aqa_8525_home.html

**How we keep parents informed:**
*Year 10 - Progress reports are published 4 times per year, in October, November, March and July, with a face-to-face parents' evening in March.*

**How parents can help their child:**
*Parents/carers can help students by supporting their child's learning and providing a suitable space to study as well as helping them develop good study skills and by encouraging students to be curious and explore topics and applications.*

**What we study and when:**

| Term | Unit, Topic Or Summary Of Work Covered | Knowledge, Understanding & Skills Developed | ACHIEVE / Personal Development Focus | How The Work Is Assessed | Careers Links |
|---|---|---|---|---|---|
| 1 | (i)Computer Systems<br><br>(ii) Representing Algorithms | - Defines the terms hardware and software.<br><br>-Understands and explains key terms e.g. Algorithm, decomposition, abstraction, pattern recognition.<br>-problem solves using pseudocode, program code and flowcharts.<br>- Explains inputs, processing and outputs. | Ambitious | Review/Test. | IT Industry, Network Administrator/ Manager. |

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| | (iii) Programming | -Understands and uses data types.<br>- Uses, understands and knows how to set and use variables and constants. | | | It Industry Developer, Programmer. |
| | (iv) Computer Systems | -Defines what is meant by hardware & software.<br>-Understands the relationship between them. | Ambitious<br>Endurance<br>Versatility | Review/Test. | |
| | (v) Software Classification | -Explains what is meant by system software & applications software. And give examples.<br>--Understands the need for, and functions of, operating systems (OS) and utility programs.<br>-Understands that the OS management. | Ambitious | Review/Test. | IT Industry, Network Administrator Manager. |
| | (vi) System Architecture | -Explains the role & operation of main memory and major components of CPU within the Von Neumann architecture.<br>-Explains the effect of the following on the performance of the CPU.<br>- Understands and explain the FDE cycle.<br>- Understands the different types of memory.<br>- Understands the differences between main memory and secondary storage, and why they are needed.<br>-Understands the differences between RAM and ROM. | Ambitious<br>Endurance<br><br><br><br><br>Ambitious<br>Endurance | Review/Test.<br><br><br><br><br>Review/Test. | IT Industry, Network Administrator Manager, Systems Developer |
| 2 | (iii)Programming | - Uses, understands and knows how the following statement types can be combined in programs.<br>- Uses definite (count controlled) and indefinite (condition controlled) iteration, including nested structures. | Ambitious<br>Endurance<br>Collaborative | Review/Test. | Developer, Programmer. |
| | (ii) Data Representation | Understands the following number bases.<br>-Understands that computers use binary to represent all data and instructions.<br>-Converts in both directions.<br>-Understand units of information, including the names, symbols and values.<br>-Adds together binary numbers. | Ambitious<br>Endurance<br>Versatility<br>Collaborative | Review/Test. | Developer, Programmer, Systems Developer, TV/Film/Media. |

| | | -Understands & applies binary shifts.<br>-Understands character sets and describes encoding methods:<br>• 7-bit ASCII<br>• Unicode.<br>-Understands how text, images & sound are represented in binary.<br>-Describes how digital images are composed of individual elements.<br>- Understands how text is represented in binary.<br>- Understands how sounds are represented in binary.<br>- Describes compression of images and sound.<br>-Explains & interprets Huffman trees.<br>-Explains RLE. | | | |
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| 3 | (ii)Programming | Understands and able to use Python basics.<br>-Uses random numbers.<br>-Understands subroutines and parameters and the advantages of using them.<br>-Creates subroutines that return values.<br>-Knows that subroutines may declare their own variables, called local variables. | Ambitious<br>Endurance<br>Versatility<br>Collaborative | Review/Test. | Developer, Programmer. |
| | (ii) Representing Algorithms | -Understands and explain how the linear and binary search algorithm works.<br>-Compares and contrasts linear and binary search algorithms. | Ambitious<br>Endurance<br>Collaborative | Review/Test. | Developer, Programmer. |
| | (iii) Networks | -Defines what a computer network is and the main types.<br>-Describes the LAN topologies.<br>-Defines the term network protocol.<br>-Explains the purpose and use of common network protocols.<br>-Understands the need for, and importance of, network security and explains this. | Ambitious<br>Endurance | Review/Test. | Network Manager, Administrator, IT Helpdesk. |
| 4 | (ii)Representing Algorithms | -Understands and explains how the merge & bubble sort algorithm works. | Ambitious | Review/Test | Developer, Programmer. |

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| | | -Compares and contrasts merge sort and bubble sort algorithms.<br>-Programming Challenges. | Endurance | | |
| | (ii) Cybersecurity | -Defines the term cyber security and be able to describe the main purposes of cyber security.<br>-Understands and is able to explain the cyber security threats.<br>-Explain what penetration testing is and what it is used for.<br>-Defines the term social engineering.<br>-Defines the term malware.<br>-Understands and can explain security measures. | Ambitious<br>Endurance | Review/Test. | Cybersecurity, IT Security. |
| | (iii) Boolean Logic | -Constructs truth tables for logic gates.<br>-Interprets the results of simple truth tables.<br>-Creates, modifies and interprets simple logic circuit diagrams.<br>-Creates the Boolean expressions for a simple logic circuit. | Ambitious<br>Endurance | Review/Test. | Cybersecurity, IT Security. |
| 5 | (i) Boolean Logic | -Creates the Boolean expressions for a simple logic circuit. | Ambitious<br>Endurance<br>Collaborative | Review/Test. | Developer, Programmer. |
| | (ii) Programming | -Understands arrays & 2D arrays.<br>-Understands regular expressions & solve problems.<br>-File handling and being able to create, write, read, append and sort files. | | Review/Test. | Developer, Programmer. |
| 6 | (i) Programming | Recap/Practice | Ambitious<br>Endurance<br>Collaborative | Review/Test. | Developer, Programmer. |
| | (ii) Text-based Adventure Game | NEA | | Internally Assessed | |