

**A-Level Overview Year 1: Computer Science**

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| Term | Mrs S Biggs | Mrs L James | Key Skills / Coursework / PSAs / Deadlines |
|  | **Unit 01** | **Unit 02** |
| 1 | Characteristics of contemporary systems architecture (Operating systems) | Elements of computational thinking |  |
| 2 | Legal issues  Software | Elements of computational thinking | Internal Review test |
| 3 | Moral issues  Software development | Problem solving and programming |  |
| 4 | Ethical issues  Data types and structures | Problem solving and programming | Internal Review test |
| 5 | Cultural issues  Binary arithmetic | Algorithms |  |
| 6 | Logic gates  Karnaugh maps | Algorithms | Unit 01-02 exams |



**A-Level Overview Year 2: Computer Science**

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| Term | Mrs L James | Mrs L James | Mrs L James |
|  | **Unit 01** | **Unit 02** | **Unit 03** |
| 1 | Review: Characteristics of contemporary systems architecture (Operating systems)   * Data transmission: NICs, routers and wireless access points, network security and threats. | Review: Elements of computational thinking  Thinking concurrently | Proposal approved  Analysis |
| 2 | Review: Legal issues / Moral issues  Review: Software   * Applications: Lexical analysis, Linkers and Loaders. * Software: Pipelining. | * Programming languages: memory addressing, Polymorphism, Encapsulation. | Design |
| 3 | Review: Software development   * Databases: Entity relationship modelling, database normalisation, referential integrity, SQL. | Algorithms: merge sort, complexity, Dijkstra’s algorithm, advanced algorithm problems. | Implementation |
| 4 | Review: Ethical & Cultural issues  Data types and structures   * Data structures: Linked lists, Trees, hash tables. * Internet: Pagerank algorithm, client and server side processing, encryption. | Advanced algorithm problems. | Evaluation  Project deadline EASTER |

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| 5 | Review: Binary arithmetic   * Computer arithmetic: floating point numbers, bitwise manipulation. * Logic gates and Boolean algebra: De Morgan’s rules, adder circuits, flip-flop circuits. |  | Unit 03 submission |
| 6 | Review: Logic gates  Review: Karnaugh maps |  | Unit 01-02 exams |