

Modern life would not exist as we know it without Computing and IT. From Ada Lovelace's first algorithm and the codebreakers of Bletchley Park, through to modern technological marvels such as artificial intelligence, the International Space Station or simply the phone in your hand. All are the culmination of continuous creativity, problem solving and logical thinking, utilising current developments in maths, science and technology to build the digital world we live in.

Computing and IT is a practical and valuable subject, it allows children to experience the joy of bringing their own ideas to life through code, creating digital products of their own design. To understand how the technology around them works, and to become confident creators of technology rather than just consumers of it.

KEY STAGE 3

- **Computational Thinking:** Apply abstractions, logic, algorithms, and data representation (including binary and Boolean logic).
- **Programming Languages:** Progress from block-based coding (such as Scratch) to text-based programming (such as Python).
- **Systems & Hardware:** Study computer architecture, hardware and software components, and cyber security fundamentals.
- **Digital Skills:** Develop safe, responsible and confident use of technology, including e-safety, online research, and productivity software such as word processors, spreadsheets and presentation tools.
- **Creative iMedia:** Explore the fundamentals of digital media, including graphic design, image editing and planning documents, building the creative and technical skills needed for Creative iMedia at KS4.

KEY STAGE 4

GCSE Edexcel Computer Science

- **Computer Systems:** Explore CPUs, memory, storage, data representation, wired/wireless networks, and system security.
- **Algorithms & Programming:** Develop robust programs, apply computational logic, use translators, and undertake practical programming projects in high-level languages like Python.
- **Wider Impacts:** Investigate ethical, legal, cultural, and environmental issues surrounding modern computing technology.

OCR Creative iMedia

- **Media Industry:** Study media sectors, products and job roles, pre-production planning, and the legal and ethical issues involved in creating and distributing media products.
- **Visual Identity & Digital Graphics:** Develop visual identities for clients and plan, create and review digital graphics to meet a brief.
- **Practical Media Production:** Apply creative and technical skills to a substantial practical project, such as animation with audio, interactive digital media or digital games.

KEY STAGE 5

A-level in Computer Science

- **Programming & Data Structures:** Develop advanced programming skills, including object-oriented programming, recursion, and data structures such as stacks, queues, trees and graphs.
- **Algorithms & Theory of Computation:** Analyse searching, sorting and path-finding algorithms, evaluate their efficiency using Big O notation, and study abstract models of computation.
- **Computer Systems & Networks:** Study processor architecture, operating systems, databases and SQL, networking protocols, and the structure of the internet.
- **Programming Project:** Plan, develop, test and evaluate an independent programming project that solves a real-world problem for a chosen user.