A LEVEL IN COMPUTER SCIENCE

With computers used in virtually every aspect of modern life, this course is an excellent choice for those who see their eventual careers in Computing.

Students of Computing will develop an understanding of, and the ability to apply, the fundamental principles and concepts of computer science, including abstraction, decomposition, logic, algorithms and data representation; the ability to analyse problems in computational terms through practical experience of solving such problems, including writing programs to do so; the capacity for thinking creatively, innovatively, analytically, logically and critically; and the capacity to see relationships between different aspects of computer science.

Key Facts

Course Duration: 2 Years

Course Contents

Component 1: Programming and System Development

- Data Structures
- Logical Operations
- Algorithms and Programming
- Principles of Programming
- Systems Analysis
- System Design
- Software Engineering
- Program Construction
- Economic, moral, legal, ethical and cultural issues relating to Computer Science.

Component 2: Computer Architecture, Data, Communication and Applications

- Hardware and Communication
- Data Transmission
- Data Representation and Data Types
- Organisation and Structure of Data
- Databases and Distributed Systems
- Operating Systems

- The need for different types of Software and their Attributes
- Data Security and Integrity Processes

Component 3: Programmed Solution to a Problem

- Discussion
- Investigation
- Design
- Prototype
- Post-Prototype Refinement
- Software Development
- Testing
- Evaluation

Features and Benefits

Opportunities to program in multiple programming languages such as Python, C++ and C#.

Minimum Entry Requirements:
All Loughborough College Sixth Form courses have minimum entry requirements of at least five GCSEs at grade C/4 or above, including English Language and Maths.

Subject Specific Entry Requirements:
GCSE English Language and Maths at grade 5.

Assessment Methods:

Two x 2.5 hour exams (80%), and a Non-Exam Assessment (NEA/Coursework) project (20%).

Progression Opportunities

Whilst this is the obvious choice for those students who are planning to have a career in Computing related industries, the widespread use of computers in all vocations makes this course valuable alongside other subjects and careers, particularly, though not exclusively, in science and engineering.