COMPUTER SCIENCE
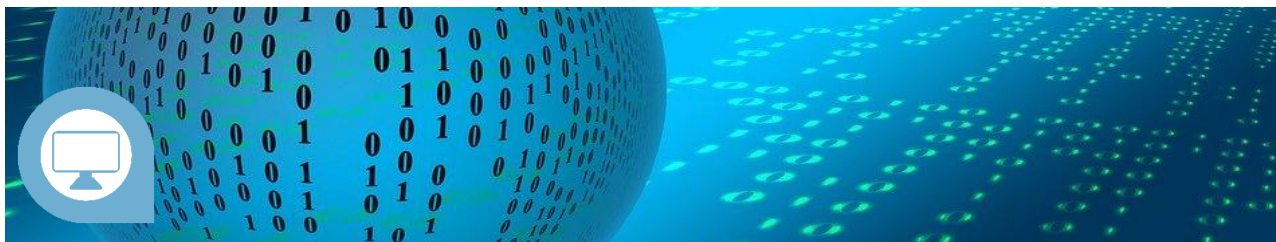## GCSE

Examination Board: EdExcel
Subject Leader(s): Dr A Middleton
Subject Teacher: Mr M Darbyshire & Dr A Middleton

Course Structure

Unit	Topics/Unit Title	Assessment	Weighting(%)
1	Application of Computational Thinking	2 hour On Screen Examination, Tests your ability to read, write, refine and evaluate programs in Python. There are 6 programming tasks (no calculators allowed)	50%
2	Principles of Computer Science	1 hour 30 minutes written paper, set and marked by the exam board. There are 5 multipart questions (no calculators allowed)	50% 75 marks

What does the course involve?

This option is classed as a science GCSE and covers five core areas, in addition to teaching you how to program within the Python language. All five areas are assessed in the first paper and your programming in the second paper.

1. Computational Thinking – Understanding algorithms, what they are for and how they work and the ability to follow them and construct truth tables.

2. Data – Understanding binary, data representation, data storage and compression

3. Computers – Understanding hardware and software components of computer systems and the characteristics of programming languages.

4. Networks – Understanding computer networks and network security

5. Issues and Impact – Awareness of emerging trends in computer technology, and the impact on individuals, society and the environment, including ethical, legal and ownership issues.

The first paper will have five questions (one per topic). The longer second paper has six questions and will test their ability to program in Python on a computer in an examination environment – all their code is graded externally.

Further Study/Employment Prospects

The late Steve Jobs remarked, that everyone should learn how to program because it teaches them how to think. The Computer Science Industry was born in England & the first programmer was an English girl. We are heading into an uncertain economic future, with the combined effects of Brexit and a pandemic yet, most of the top ten in demand job currently require computer science skills. Computer Science is a massively in-demand skill in this area, with Barclays at Radbrook Hall, the BBC at Media City and GCHQ moving into Warrington (to name just a few). This technical, academic and highly mathematical GCSE course is the perfect grounding to our GCE course in Computer Science..

Skills you will develop

You will develop the following skills:

- take a systematic approach to problem solving including the use of decomposition and abstraction, and make use of conventions including pseudo code and flowcharts

- design, write, test and refine programs, using one or more high-level programming language with a textual program definition, either to a specification or to solve a problem

- use appropriate security techniques, including validation and authentication

- evaluate the fitness for purpose of algorithms in meeting requirements efficiently using logical reasoning and test data.

- use abstraction effectively

- to model selected aspects of the external world in a program

- to appropriately structure programs into modular parts with clear, well documented interfaces

- apply computing-related mathematics