

# Computer Science

## (GCSE)

### What will I learn about?

If you study Computer Science at GCSE you will learn about the following key topics:

- Fundamentals of algorithms
- Programming
- Fundamentals of data representation
- Computer systems
- Fundamentals of computer networks
- Cyber security
- Relational databases and structured query language (SQL)
- Ethical, legal and environmental impacts of digital technology on wider society, including issues of privacy

In Year 10, students will develop a foundation knowledge of computer programming and algorithm design that will be built upon throughout the Year 11 course. You will also learn about how computers fundamentally work including the computer systems and the how data is stored and passed around the system.

In Year 11, there will be an emphasis on Cyber security requirements including networking architectures and security threats. Finally in Year 11 you will look at how large data sets are stored within databases and how we can use the SQL language to manipulate this data. Throughout both years of the course we will regularly look at the Ethical, legal and environmental impacts of computers.

### How is the course structured?

The course is structured with a mixture of theoretical learning and practical programming learning. The course is made up of 2 units of study:

Paper 1: Computational thinking and programming skills. A written examination that will get you work with programming code and coding concepts to solve problem.

Paper 2: Computing Concepts. A written examination that will test your knowledge of computers systems, data representation, networks, databases and cyber security.

### How will my work be assessed?

The course is assessed through the following methods:

#### Paper 1: Computational thinking and programming skills

Written Exam: 2 hours (90 marks) – 50% of the GCSE. The questions will involve a mix of multiple choice, short answer and longer answer questions assessing programming, practical problem-solving and computational thinking skills.

#### Paper 2: Computing Concepts

Written Exam: 1 hour 45 mins(90 marks) – 50% of the GCSE. The questions will involve a mix of multiple choice, short answer, longer answer and extended response questions assessing SQL programming skills and theoretical knowledge.

In addition to this students also have to complete a Programming Project which is set externally by the AQA exam board.

### Where can this qualification lead to?

The Digital technology sector is one of the fastest growing areas of employment within the UK. A Computer Science GCSE will allow you to either pursue a career in a Digital Technology field or to carry on with your studies within the Computer Science pathways that we have on offer at UTCW. Examples of careers would include: Cyber Security, Robotics, AI, IT systems Management.