

# COMPUTER SCIENCE KS4



## What are the benefits and risks of networking?

How does the Fetch-Decode-Execute cycle work?  
What are the functions of the CPU and the ALU?  
What is the difference between RAM and ROM?  
Why do we need secondary storage?  
What are LAN, WAN and PAN and what is the purpose and scope of these networks?



## Why is network security important?

What is a network protocol?  
Why are protocols layered?  
How can we protect against cyber security threats?  
What are the different types of social engineering?  
How do different types of malware work?  
What are the differences between system and application software?



## What legislation surrounds digital technologies?

How do digital technologies impact on society?  
What are the risks of digital technologies?  
How do digital technologies impact the environment?  
How does legislation protect against risks to society and the environment?

**YR10**



## How do data validation routines make sure programming is secure?

What is data validation?  
How do data validation routines check the validity of data?  
How do I select suitable test data?  
How are syntax errors and a logic errors different?



## How are iteration, selection and sequence structures used in programs?

What are appropriate uses for integer, real, Boolean, character and string data types?  
What are the differences between procedures and functions?



## Why is hexadecimal often used in computer science?

How are decimal, binary and hexadecimal used to represent numbers?  
What are the advantages of Unicode?  
How is sound represented digitally?  
What is data compression?



## How are algorithms used?

What is an algorithm?  
What are the advantages of decomposition?  
What is abstraction?  
How are flowcharts and pseudo-code used to represent an algorithm?



## Why are most computer programs written in high-level languages?

What are the advantages and disadvantages of low-level language programming compared with high-level language programming?  
What are the differences between common program translators?  
When is it appropriate to use an interpreter, a compiler and an assembler?

**YR11**



## How do I use Boolean expressions made up of NOT, AND, OR, and XOR operations?

How do I construct truth tables for simple logic circuit diagrams?  
How do I construct and interpret the results of truth tables?  
feedback contribute to the development of an interface?

## Exam preparation

How can I make sure I am revising effectively for this subject?  
How do I memorise and recall knowledge I need for the exam?  
How do I maximise marks in this subject's exam?  
What are the gaps in my knowledge and how can I address them?  
How do I approach exam questions in this subject to ensure I reach the highest grade?  
What do I need to do to prepare myself for Sixth Form courses?

## BRIDGING UNIT

### How do relational databases work?

How does using a relational database eliminate data inconsistency and data redundancy?  
What is an SQL and how can it be used to query a relational database?

**KS5**