

## Computer Science Curriculum Vision:

### **Why should students study computer science?**

- Computational thinking provides students with the tools to problem solve effectively and efficiently. They link to any task or subject and are a valuable life skill to have and develop.
- Technology is everywhere and with each passing year becomes more integrated into our daily lives. To have an understanding of how this works is vitally important.
- Computer scientists enable change to happen. From developing technology to create a better world, through developing algorithms to solve complex problems, to handling huge amounts of data to provide answers to difficult questions.
- Computer science has a huge and diverse range of job opportunities, often well paid and in high demand.
- Computer science provides practical and useful advice for staying safe online.
- Computer science values lifelong learning. Technology doesn't stay still for long, new technologies appear all the time.
- Computer science taps into curiosity. Such as how zeros and ones translate into the amazing devices and software we have at our disposal.

### **What is the core knowledge in computer science?**

Computational thinking: A problem-solving method using computer science techniques, where possible solutions are developed and presented in a way that can be understood by humans and computers. This involves:

- Abstraction: It involves filtering out, essentially ignoring the characteristics that we don't need in order to concentrate on those that we do.
- Decomposition: The breaking down of a system into smaller parts that are easier to understand.
- Algorithms: A sequence of logical instructions for carrying out a task.
- Pattern recognition: Spotting similarities or characteristics that are a part of a bigger problem.

### **What do students do with their knowledge to demonstrate their understanding?**

With the knowledge gained in computer science, students should be able to identify and apply computational thinking (abstraction, decomposition, algorithms, and pattern recognition) in the context of the subject and recognise its application in everyday life and the wider world.