

Year 7 Computer Science

Under the hood of a computer

- Learn about the fundamental parts of computer systems.
- Identify the different hardware types and whether they are input devices, output devices, storage devices or processing devices.
- Learn about the different types of software including an overview of an operating system and application software.
- Understand how computer systems communicate using binary.
- Convert 4 bit and 8 bit strings from binary to decimal and decimal to binary.
- Identify how file sizes are calculated and how they are measured in bits, bytes, kilobytes and megabytes.

Creating animations using programming

- Learn how algorithms are created to solve problems.
- Use Yenka software to create an algorithm using different dance moves.
- Use flowcharts to design routines, create routines and debug any errors in the algorithms.
- Develop algorithms for dance routines using more advanced programming techniques.
- Use conditions, loops, functions and procedures, nested selection statements and IF, THEN, ELSE statements in algorithms.

Thinking like a Computer Scientist

- Understand how to create algorithms through the use of computational thinking.
- Use Dr Snow's example of computational thinking (decomposition, pattern recognition, abstraction and hypothesis testing) in the Cholera outbreak in Soho in 1854.
- Use computational thinking by creating algorithms for problems.
- Apply knowledge and understanding of computational thinking to a similar problem in Africa.

Advice to students for independent study

- Research internal parts of computer systems and calculate binary conversions.
- Research computational thinking and apply this in class work.
- Develop more advanced routines using advanced algorithms.
- Complete homework which will consolidate learning from lessons, including the binary topic which needs practise.