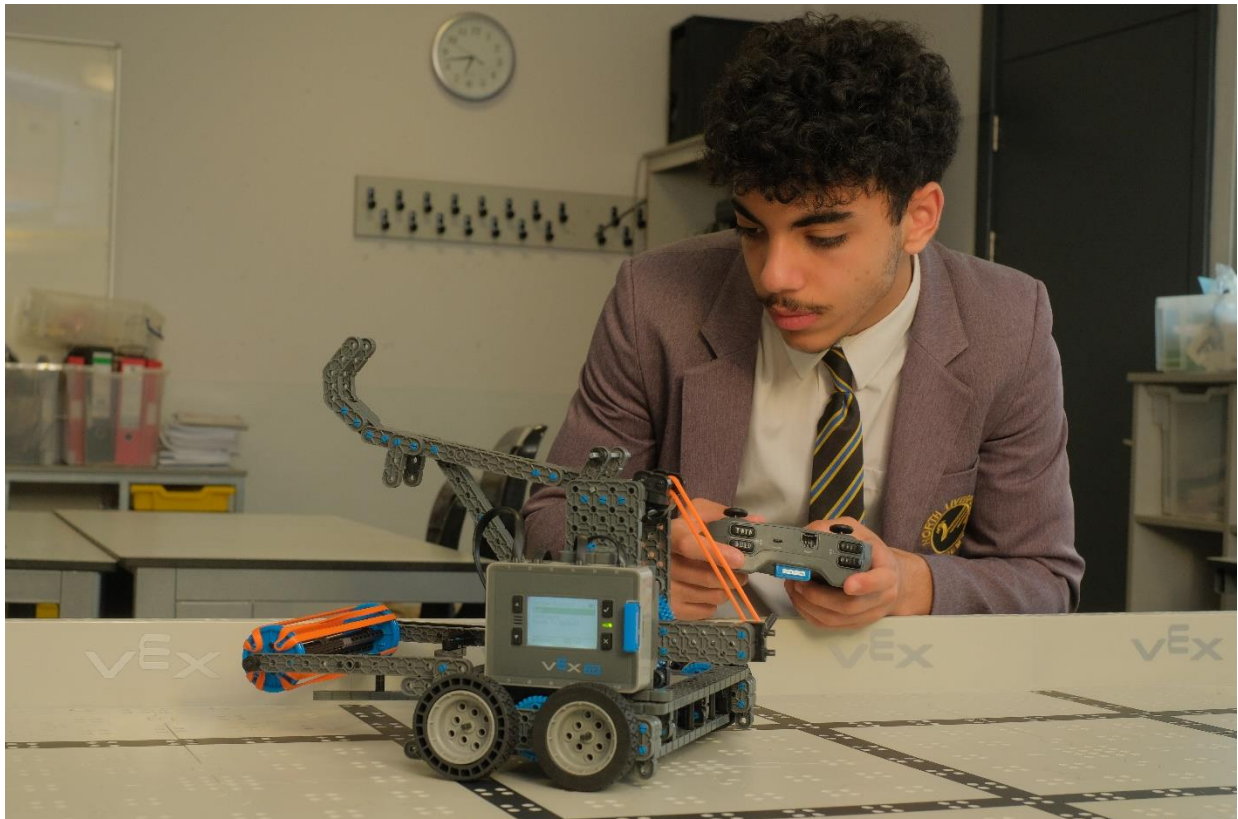


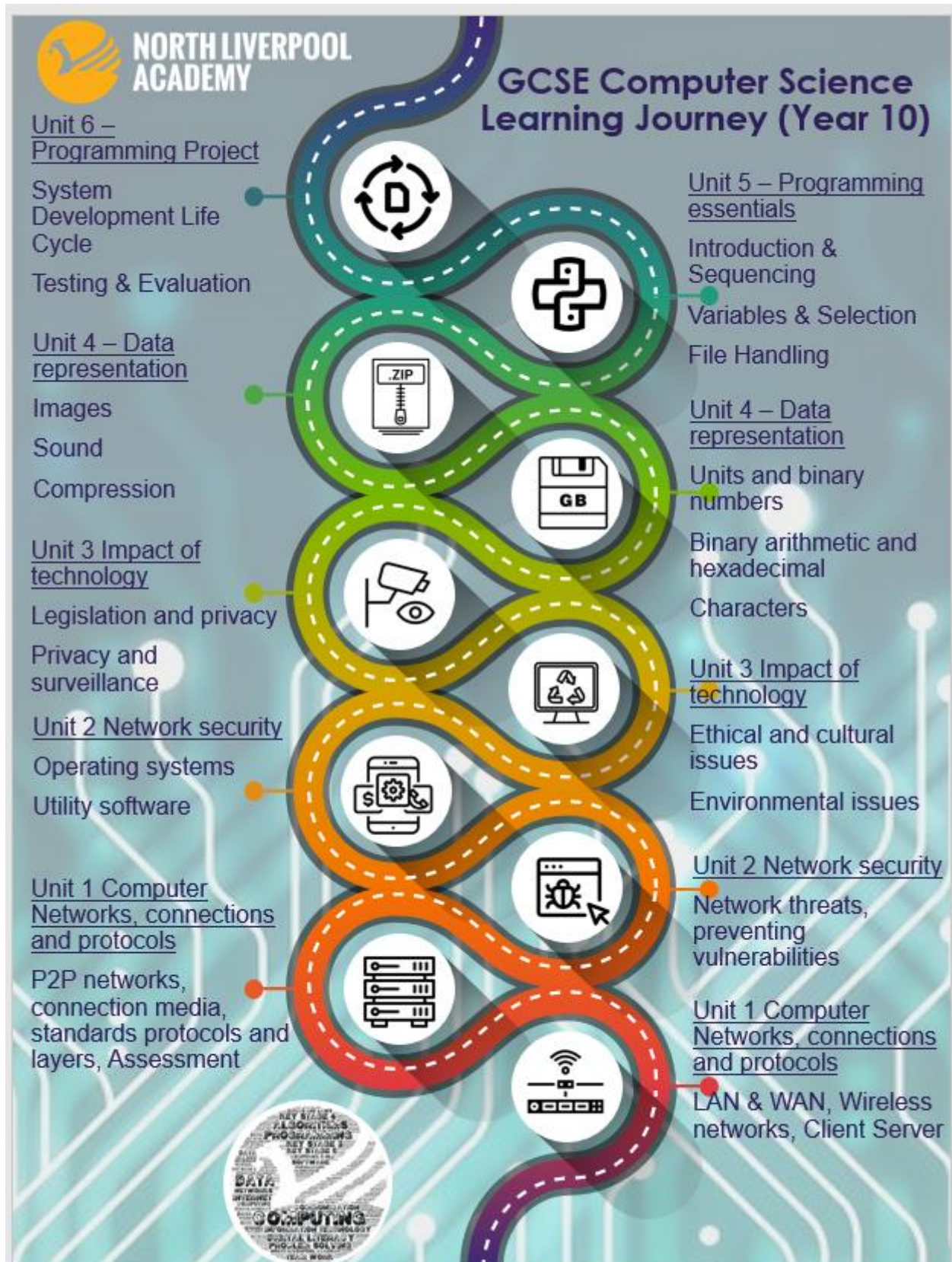
Computer Science

GCSE Computer Science covers a breadth and depth of knowledge that allows users to understand the technology around us at its most basic level, and develops the skills needed to innovate and create new technologies in a modern society. It covers 10 distinct topics that are examined across two terminal exam papers in Year 11 – both of these papers provide 50% of the final GCSE Computer Science grade.



Students study academic and practical elements covering Component 01 – ‘Computer Systems’ and Component 02 ‘Computational thinking, algorithms and programming’. Students will also complete a programming project, which introduces the concepts of the Software Development Life Cycle and capitalises on the practical programming unit covered in Year 10, where students learn to program in Python, a high-level language.

Our Learning Journey shows how our topics build upon each other and our students experience a wide variety of themes in order to broaden their learning experience:



KS4-KS5 A-Level
Computer Science
bridging unit

Isaac Computer Science

SLR 1.4 – Network Security

Threats and vulnerabilities,
mechanisms of safety,
Privacy issues

SLR 1.3 – Computer
Networks, connections and
protocols

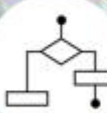
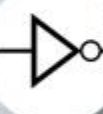
Types of networks
Network performance

SLR 2.4 – Boolean Logic

Logic gates and Boolean
Algebra, Truth Tables

SLR 1.2 Memory and
Storage

RAM & ROM, Virtual
Memory, Secondary
Storage, applications of
storage, Units, Data
capacity, Characters,
Images and Sound



GCSE Examinations

COMP01 – Computer
Systems

COMP02 – Algorithms,
Computational thinking and
Programming

SLR 1.6 – Impact of
Technology

Ethical, Environmental,
Cultural and Legal impact of
technology

SLR 2.5 – Programming
languages and IDEs

Characteristics of
languages, Low-level
languages, High-level, IDEs

SLR 2.1 - Algorithms

Abstraction, Decomposition,
Algorithmic Thinking,
Sorting, Searching

SLR 1.1 – Systems
Architecture

Architecture, Common CPU
characteristics, CPU
performance and Embedded
Systems

Our curriculum at KS4 is as follows:

Year 10 GCSE Computer Science

Memory and Storage
Systems Architecture
Algorithms
Producing robust programs
Programming fundamentals

Year 11 GCSE Computer Science

Computer Networks, connections and protocols
Network security
Systems software
Ethical, legal, cultural and environmental impacts of technology
Boolean Logic
Programming languages and Integrated Development Environments

Learning through Experiences in Computer Science

In order to enhance the provision of Computer Science beyond the curriculum, our students benefit from the following experiences:

- British Esports
- Bebras Computational Thinking Challenge
- Cyber Centurion Competition
- Bletchley Park visit

