

Composite: Under the hood

Year 8

Teaching hardware, software, inputs, outputs, and presentation skills gives students a strong foundation for understanding and communicating in a digital world. Hardware and software knowledge helps them grasp how computers function and how different components work together. Inputs and outputs show how information flows between people and machines, building practical problem-solving skills. Learning to create clear, engaging presentations in tools like PowerPoint strengthens communication, organisation, and confidence. Together, these areas develop technical awareness and the ability to share ideas effectively, preparing students for further study and real-world tasks where digital competence is essential.

Teaching the internal workings of computers supports our vision for students to **Belong, Achieve, and Thrive:**

Belong

Understanding the core parts and processes of a computer helps students feel informed and included in a world shaped by digital technology. When learners understand what's inside the devices they use every day, computing becomes less intimidating and more accessible. Practical tasks—such as exploring hardware, building systems, or diagnosing faults—encourage teamwork and create a sense of shared discovery within the classroom.

Achieve

Learning how a computer works at a fundamental level strengthens students' knowledge across programming, networks, operating systems, and broader computer science. It enhances logical thinking, problem-solving, and technical vocabulary, supporting achievement in assessments and qualifications. A solid understanding of hardware and processes also provides an essential foundation for higher-level study in computer science, engineering, and IT.

Thrive

By knowing how computers operate internally, students gain the confidence and curiosity to tackle real-world digital challenges. This awareness prepares them for future pathways in technology, cybersecurity, engineering, and other STEM fields. More importantly, it empowers them to diagnose problems, understand technological change, and make informed decisions about the devices and systems they rely on—key skills for thriving in an increasingly digital society.

Composite: Cryptography

Year 8

Teaching cryptography, hackers, malware, and device protection is essential because it helps students understand the risks and responsibilities of living in a digital world. Cryptography introduces the principles behind keeping information private and secure. Learning about hackers and their methods builds awareness of how attacks happen and why systems are targeted. Understanding malware shows how harmful software spreads and the damage it can cause. Most importantly, students gain practical knowledge about preventing infections through safe browsing, strong passwords, updates, and cautious downloading. These skills empower learners to protect themselves, their data, and their devices with confidence.

Cryptography also supports our commitment to helping students **Belong, Achieve, and Thrive:**

Belong

Understanding cryptography helps students feel confident and included in a world where digital privacy and security are part of everyday life. By demystifying how data is protected, students become informed digital citizens who can make safe, responsible choices online. Collaborative tasks—such as code-breaking challenges and secure-message activities—help students work together and build a strong sense of classroom belonging.

Achieve

Cryptography strengthens students' problem-solving, logical thinking, and mathematical reasoning. Through exploring codes, ciphers, algorithms, and patterns, learners develop analytical skills that support achievement across computing, maths, and other STEM subjects. It also provides essential foundational knowledge for cybersecurity pathways and advanced computer science qualifications.

Thrive

By mastering core cryptographic concepts, students gain the confidence and curiosity to explore how digital systems protect people, organisations, and societies. This empowers them to navigate the digital world safely and prepares them for future opportunities in computing, security, and technology-driven careers. Learning cryptography equips students with the resilience, critical thinking, and digital awareness they need to thrive in a rapidly evolving landscape.

Composite: Binary

Year 8

We teach binary to help students understand the fundamental language of computers and digital systems. Binary underpins everything a computer does—from storing text and images to processing instructions—so learning it gives students a deep and meaningful understanding of how technology actually works.

Teaching binary supports our aim for students to **Belong, Achieve, and Thrive:**

Belong

Understanding binary helps students feel confident and included in an increasingly digital world. By exploring the core building blocks of computing, learners become active participants rather than passive users of technology. This fosters a sense of belonging within the computing community and demystifies the devices they use every day.

Achieve

Binary provides the foundation for key computing concepts such as data representation, logic, programming, and hardware design. Mastering binary supports academic achievement by strengthening analytical thinking, problem-solving, and precision. It also underpins success in computer science qualifications and prepares students for more advanced digital concepts.

Thrive

Learning binary equips students with the confidence and skills to navigate and shape the digital future. As technology continues to evolve, a strong understanding of how information is stored and processed empowers learners to innovate, troubleshoot, and adapt. This positions them to thrive in further education, employment, and the wider digital landscape.

Composite: Microbits

Year 8

We teach micro:bits to give students hands-on experience with physical computing, encouraging them to become creative, confident problem-solvers in a digital world. Micro:bits allow learners to bring code to life through lights, sensors, sound, and movement—making abstract computing concepts tangible, engaging, and accessible for all.

Teaching micro:bits helps our students **Belong, Achieve, and Thrive**:

Belong

Using micro:bits helps students feel included in the world of computing by giving them tools they can physically explore and experiment with. The simplicity and accessibility of the device ensure that every student—regardless of prior experience—can participate meaningfully in programming and digital creation. Collaborative projects foster teamwork, communication, and a sense of belonging within the classroom community.

Achieve

Micro:bits help deepen students' understanding of key computing concepts such as programming, algorithms, inputs/outputs, and data. By applying code to real hardware, learners develop problem-solving skills and resilience through testing, debugging, and iteration. These experiences support progress in computing qualifications and strengthen transferable skills that contribute to achievement across the curriculum.

Thrive

Working with micro:bits nurtures creativity, curiosity, and innovation. Students learn to design solutions to real-world problems—whether creating alarms, games, environmental monitors, or assistive devices. These practical experiences build confidence and equip learners with future-ready skills that prepare them for further study, employment pathways, and active participation in a technology-driven society.