

ICT

Vision and Intent



Co-op Academy
Grange

Our Vision for Computing at Co-op Academy Grange

In today's digital world, a comprehensive understanding of computers is crucial for students to make informed choices. Through the high-quality Computing education offered at Co-op Academy Grange, students acquire essential skills such as computational thinking, problem-solving, creativity, programming, debugging, and troubleshooting. These skills empower them to not only comprehend and actively contribute to their community but also thrive in the modern workplace. Moreover, Computing skills enable students to take an active role in the analysis, research, planning, design, creation, and review of new technologies. Computing encompasses various disciplines, including mathematics, engineering and product design, highlighting its connection to creativity and enterprise. Additionally, these subjects foster high-quality literacy skills through analysis and evaluation techniques. Computing will look to cultivate and enhance students' literacy skills through the use of analysis and evaluation techniques, ensuring the development of high-quality communication ability.

Our Intent for Computing at Co-op Academy Grange

The intent of our Computing curriculum is designed around key core pillars of Knowledge and Skill Development, Sequential Learning, Relevance to Community and Cultural Capital, Computer Science, Digital Media, Digital Literacy, aiming to provide a holistic, comprehensive, and progressive learning experience for students.

Knowledge and Skill Development: The curriculum ensures a robust grounding in key Computing skills, covering critical topics such as E-safety, website building, Flowol and algorithmic thinking, block programming, and textual programming. The focus is on blending theoretical knowledge with practical application, allowing students to develop tangible digital skills:

- **Computer Science:** This strand is focused on the scientific and practical study of computation, exploring how to effectively apply computation to solve problems.
- **Digital Media:** This strand encourages creativity and hands-on experience in researching, planning, and developing media products for digital communication.
- **Digital Literacy:** This strand aims to equip students with the ability to safely, effectively, and critically navigate, evaluate, and create digital artefacts using various digital technologies

By the end of KS3, a Grange Computing student will:

- Have a comprehensive understanding of the opportunities and limitations of the digital world, becoming an active participant within it.
- Understand the core principles of information and computation, learning how digital systems work, and applying this knowledge through programming or product creation.
- Be equipped with the skills necessary to create programs, systems, and diverse digital content.
- Become digitally literate, capable of using computers to express themselves, and develop their ideas.
- Gain proficiency in researching, designing, planning, creating, applying, testing, and evaluating digital products for a specific purpose and audience.

By the end of KS4, a Grange Computing Student will:

- Develop advanced skills in programming systems.
- Gain an understanding of how organisations use computers, the importance of technology in today's society, the potential impacts, and issues that can arise from using digital products.
- Understand the security concerns surrounding computer systems and technology.

Sequential Learning: Each stage of the curriculum is intentionally structured to build upon the last, facilitating cumulative skill and knowledge acquisition. The KS3 content builds on the foundational skills learned at KS2, gradually introducing more complex topics to prepare students for Level 1 /2 and beyond. This progression aims to equip students with the knowledge and skills needed for further study or beyond school life.

Relevance to Community and Cultural Capital: The curriculum is tailored to reflect the needs and opportunities of the local community, imbuing students' learning with real-world relevance. It also emphasises the importance of digital citizenship and online safety, helping students navigate the digital world responsibly and equip them with the cultural capital they need in the digital age.

Our Computing curriculum is designed to promote students' overall development by integrating essential literacy and numeracy skills within the context of computer science. It encourages creative expression, problem-solving, and collaborative work, identifying and nurturing cross-curricular links to promote a holistic approach to learning.

Recognizing the diversity in student abilities, the curriculum is designed to be flexible and inclusive. For less able students, it provides additional support, breaks down material into manageable chunks, utilises diverse teaching methods, and offers ample opportunities for practice and reinforcement. For the most able students, it presents challenges through independent research, collaborative projects, and enrichment activities, promoting continuous engagement and higher-order thinking.

Beyond classroom learning, the curriculum incorporates a range of extra-curricular activities such as coding clubs, Co-op Academy Trust-wide, and sessions with guest speakers from the tech industry. These activities are designed to provide practical, real-world perspectives, enhance understanding, and foster a genuine interest in the field.

In essence, the curriculum intent is to deliver a robust, relevant, and comprehensive learning journey in computer science. It is designed to prepare students for future learning, equip them with the skills needed in a digital economy, and support their holistic development, helping them to thrive in both their further studies and future careers.

What does it look like in the classroom? (Implementation)

The implementation of the Computing curriculum emphasises a dynamic, student-centric approach rooted in core competencies of Computer Science, Digital Media, and Digital Literacy.

Every lesson is carefully structured to provide clear learning objectives and show how the day's material connects to "The Big Picture," thereby helping students understand the broader context of the knowledge they're acquiring. We initiate our lessons with a "Quick Six" retrieval exercise to facilitate memory consolidation and knowledge retention, fostering the transference of knowledge into long-term memory.

Maintaining a significant emphasis on developing strong literacy skills, the curriculum integrates opportunities for reading, speaking, and listening into the Computing lessons. To support students in understanding concepts and problem-solving, the curriculum makes extensive use of the "I / We / You" modelling strategy, in which teachers first demonstrate a task, then work on it with the students, and finally let the students perform it independently.

The curriculum employs formative assessment strategies to continually check students' understanding and provide timely feedback, which facilitates engagement, deepens knowledge, and addresses misconceptions through skillful questioning. Programming skills and software usage are recurrent themes, reinforced annually through recap activities and knowledge checkpoints.

Promoting a responsible digital culture, the curriculum regularly revisits online safety, teaching students to communicate respectfully and understand the legal implications of their online actions. This includes exploring the effects of technology systems on society, such as the impacts of robotics and artificial intelligence.

The curriculum implementation also accounts for independent learning, with lessons designed to transition gradually from teacher-led demonstrations to independent student work. This structured approach, complemented by enrichment activities like coding clubs and competitions, guest talks, and industry visits, ensures a robust, comprehensive, and meaningful learning experience in Computing.

What will the impact be?

The impact of implementing our meticulously designed Computing curriculum extends beyond the typical academic outcomes. By combining knowledge acquisition, skill development, and character-building, we aim to produce well-rounded individuals ready to navigate the increasingly digital world.

Upon completion, students will be fully equipped to explore diverse pathways, with doors open to them across a range of careers and further educational opportunities within and beyond the realm of Computing. This grounding comes from a thorough understanding of computational

principles, digital literacy, and the practical application of these in real-world situations, providing them with a robust skillset desirable across many industries.

Our curriculum strives to foster a deep love for learning, especially centred around technology and its applications. This includes nurturing literacy skills within the context of Computing - from reading technical documentation to the articulation of complex technological concepts, both verbally and in writing.

Crucially, students will develop an understanding of the societal and cultural impacts of Computing . As we delve into topics such as online safety, digital citizenship, and ethical considerations in Computing , students will gain valuable insights that contribute to their cultural capital. For instance, they will understand how technology can influence society and how to use it responsibly.

Our high-aspiration ethos and comprehensive curriculum also aim to instil self-belief in students. They will come to know the steps they need to take to achieve their goals, whether that be in programming, data analysis, or digital media. This understanding, coupled with the confidence to learn independently, will empower them to tackle challenges head-on, both inside and outside of the classroom.

Students' preparation for their future careers isn't confined to the classroom. Exposure to industry professionals and real-world Computing scenarios will give them a clearer picture of the opportunities available to them. This could include interactions with members of the Co-op, giving them insights into the professional world and helping them make more informed decisions about their future.

The end result of our Computing curriculum implementation is a cohort of students ready to transition successfully into the wider world of further education, training, or employment. Equipped with essential technical skills, resilience, and a strong sense of digital citizenship, they will thrive as active, contributing members of society, ready to harness the power of technology in ethically sound and creative ways.