



Computing Curriculum Intent

The Computing department at Irlam and Cadishead Academy aims to develop confident digital citizens. Through challenging and engaging projects, students will learn how to use computational thinking skills to solve given problems. All students will have the opportunity to write their own programs, design webpages and produce professional quality digital products whilst learning basic ICT skills in preparation for life beyond education. We are dedicated to ensuring that our students leave the Academy with the skills to embrace a future of rapidly advancing computer technology.

In Key Stage 3, students will primarily follow the NCCE Computing curriculum which includes learning to code using Scratch as an introduction to coding advancing to the text-based programming languages: Python in preparation for Key Stage 4. They will begin to understand how various types of instructions are stored and executed in computer systems, and how they can be used to represent images, music and text.

Students will undertake creative projects that involve selecting, using, and combining multiple applications to achieve challenging goals. This includes collecting and analysing data and meeting the needs of known users. They will understand a range of ways to use technology safely, respectfully, responsibly, and securely: including protecting their online identity and privacy; recognising inappropriate content; contact and conduct; and knowing how to report concerns in preparation for Key Stage 4.

Implementation

In KS3, students study Computing for two 60-minute lessons per fortnight. The course is delivered in line with our long-term plans. Alongside learning key topic areas, such as coding in Scratch, Python, Computer Systems, Computer Software as well as learning key terms that must be used when completing exam questions.

At the end of each topic, students will undertake an assessment to show their understanding and progress. Feedback will be provided on their assessments and pupils will be given opportunities to redo the test and eradicate any misconceptions before moving on to the next topic.

Principles

All students will study the content outlined in the scheme of learning which has been constructed based on the following principles.

Entitlement: The planned curriculum at Irlam and Cadishead Academy includes a breadth of knowledge relating to computer science, information technology, and digital literacy. Declarative knowledge ('knowing that') and procedural knowledge ('knowing how') are identified, sequenced, and connected in the curriculum. Students will be taught two programming languages (Scratch and Python).

Coherence: Taking the National Curriculum as its starting point, our curriculum is carefully sequenced so that powerful knowledge builds term by term and year by year. For example, Year 7 cover Scratch which progresses to Python Programming in Year 8 and 9. Students learn to use debugging habits



effectively e.g., comparing code to find differences, evaluating program to explain how it has been able to solve a problem.

Mastery: We ensure that foundational knowledge, skills, and concepts are secure before moving on. Pupil's revisit prior learning and apply their understanding in new contexts using retrieval practice tasks. Our aim is that students understand a key foundation of knowledge thoroughly before exploring more complex ideas.

Adaptability: Teachers adapt the curriculum for their classes and students. This includes adaptations for SEND and appropriate challenge to ensure a positive learning environment where students are confident to try even when they are unsure. The curriculum allows the core elements of logic and logical thinking, algorithms and algorithmic thinking, patterns and pattern recognition, abstraction and generalization, and evaluation, to be confidently understood. For example, all students are taught the same programming languages Scratch and Python, but scaffolding allows them to be accessible for all.

Representation: All our students should see themselves in our curriculum, and our curriculum takes all our students beyond their immediate experience. Digital technology is driving global changes. Our aim is to ensure that the students navigate these changes effectively and safely, which in turn requires a significant understanding of digital literacy, information technology and computer science. This knowledge is crucial if business, industry, and individuals are to exploit the opportunities offered by the new revolution. We relate this to E-Safety, how to distinguish which sites are safe and accurate/ how to check and how to keep your data safe online.

Education with character: We provide STEAM clubs in Computing to ensure our students have access to a range of topics and creating digital artifacts. Computer Science also ensures that students become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world. This includes using up-to-date office programs and utilizing web-based software.