Clevedon School Computer Science Curriculum: Statement of Intent

"We aim to provide our students with the skills to be able to use technology, and to be ready for the world of tomorrow."

Purpose of study:

This subject helps students to develop computational thinking skills and creativity in order to understand and change the world around them.

Our curriculum aims to develop students understanding of computational thinking (problem solving skills that are transferable across subject boundaries), computers (hardware), programming (developing software) and applications that are used widely in businesses globally.

In KS3 we have moved, from September 2021, to use the National Computing Centre for Excellence framework for teaching Computing. These are mapped to England's Computing Curriculum, thoroughly tested by teachers, grounded in latest research and developed for delivery by non-specialist teachers. At KS4 and KS5 we prioritise the broader context of how the concepts covered are used in real-life applications and at KS5 students can expect to be shown how concepts they meet are not only used in real life but what the next steps for studying these concepts would be. This allows students of all ages to engage with a meaningful curriculum and to see how and why it is relevant.

By studying in this way we are enabling our students to become better learners in other areas of school and also to be curious about the way that technology has been used, is being used and may be used in the future. Given the exponential growth of computing this is a critical part of their education.

Students are often shown how ideas they meet in lessons are applied in local, national and international contexts.

The Clevedon way promotes character, ambition and community in our curriculum:

Computer Science give students a framework to allow them to decompose tasks – to break them down into smaller, more manageable chunks, and to apply abstraction – removing the unnecessary details to focus on just the necessary details to solve a problem. We also help them to understand computing and technology including everything from coding skills to understanding how to enhance their own digital security and privacy.

Every single lesson students are involved in computing tasks. They use computers and gain an understanding of how to solve problems with hardware and software. They become familiar with the Microsoft365 suite of resources which is widely used by global leading businesses and they are shown real world applications of the ideas they come into contact with.

By the time our students leave they will be able to understand how to use common business-related software, think critically and computationally and understand the how to protect their data in a variety of different settings. They will have an understanding of the workings of a computer internally, gain skills in data manipulation and be ready to move to the next level of study in this field.

There are very few areas of modern life and society that remain untouched by the effects of the digital transformation. This subject is central to better understanding of the world around us. Everything from supply chains to agriculture, from music production to understanding the effects of global warming rely on computing and computers. Central to the ability to get a quality career will be the need to know how to engage with out technical, digital world. Only computer science can provide the answers needed.

Our curriculum is ambitious for all learners:

To help our students understand the impact that digital technology is having on local, national and global society we focus on specific examples and up-to-date news stories showing where technology is used. To keep it applicable to the individual we try to ensure that examples are relevant to students and are geared to examples students can relate to. In recent years students who left school at the end of both KS4 and KS5 have found related jobs in local businesses, apprenticeships with local businesses and enrolled to study at university.

How do you ensure pupils from all cultural backgrounds are engaged and feel included?

How do you ensure that vulnerable groups eg PP, EAL, SEND pupils are differentiated for, but that we still have high expectations of what they can know and do?

High Prior Attaining students will be given extension activities to take their understanding to the next level. At KS4 and 5 this involves looking ahead to the next level and KS5 leavers who go on to university to study Computer Science (as a significant proportion do) regularly report that their A level studies prepare them significantly better than their peers. Students who can code in languages other than Python are supported to do so.

Our curriculum is sequenced to enable our students to progress to brilliance:

The NCCE curriculum we use at KS3 follows on from the KS2 Scheme of Learning that is now in use in several of our feeder primary schools. For these students there is an added level of continuity. The topics studied in KS3 are revisited and built upon in a spiral curriculum with topics at both KS4 and KS5 continuing to build on these early foundations. For example, simple block coding in year 7 is used to introduce concepts such as sequencing, selection and iteration which are built on later in KS3 using coding in Python, these continue to be developed as we progress into KS4 where they are used in procedural programming including the use of functions and procedures and on into KS5 where Object Oriented Programming is taught.