Marlborough Road Academy

Computing Intent

Intent

At Marlborough Road Academy, we follow the national Curriculum for Computing at Key Stage 1 and Key Stage 2. This is taken as a minimum entitlement for learners at Marlborough Road Academy.

'A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils 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.' (The National Curriculum)

Building on the United Learning Framework for Excellence, The United Learning Primary Curriculum has six core principles:

Entitlement: All pupils have the right to learn what is in the Marlborough Road Academy curriculum, and we have a duty to ensure that all pupils are taught the whole of it.

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. We make meaningful connections within subjects and between subjects.

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.

Adaptability: The core content – the 'what' – of the curriculum is stable, but we bring it to life in our own local context, and teachers adapt lessons – the 'how' – to meet the needs of their own classes.

Representation: All pupils see themselves in our curriculum, and our curriculum takes all pupils beyond their immediate experience.

Education with character: Our curriculum - which includes the taught subject timetable as well as spiritual, moral, social and cultural development, our co-curricular provision and the ethos and 'hidden curriculum' of the school – is intended to spark curiosity and to nourish the head and heart.

We recognise that progression and cohesion in the teaching and learning of computing needs to flow effectively from Nursery to Year 6 and on into K.S 3. We ensure that pupils master core content through identifying and revisiting key knowledge (substantive and disciplinary). We sequence the curriculum to allow for gradual development of vertical concepts – the 'big ideas' – to provide firm foundations for KS3 and KS4. Our curriculum is designed to prevent common misconceptions that are often formed at an early age and prove problematic at the later stages of pupils' computational education.

Marlborough Road Academy

Computing Intent

The curriculum builds towards carefully chosen identified end points.

The Marlborough Road Academy Curriculum for Computing provides pupils with the opportunity to understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation. It encourages pupils to analyse problems in computational terms and have repeated practical experience of writing computer programs, in order to solve such problems. It instructs pupils on how to evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems, to be responsible, competent, confident and creative users of information and communication technology. The computing curriculum is structured around 4 vertical concepts:

- Computing systems and Networks
- Programming
- Creating Media
- Data and Information

The EYFS at Marlborough Road Academy follow the 'Early Years Statutory Framework for the Early Years and Foundation Stage' (DfES, 2014). Technology is where children are taught that a range of technology is used in places such as homes and schools (UL EYFS Framework) and that they can select and use technology for particular purposes.

At K.S 1, the curriculum develops skills through understanding what algorithms are and that programs execute by following precise and unambiguous instructions, including creating and debugging simple programs and using logical reasoning to predict their behaviour. The Creating Media vertical concept teaches pupils to create, organise, store, manipulate and retrieve digital content. Within the Computing systems and Networks vertical concept, pupils learn to use technology safely and respectfully inside and outside school.

At K.S 2, the curriculum develops these skills further through designing, writing and debugging programs that accomplish specific goals, including controlling or simulating physical systems. This further includes using logical reasoning to explain how algorithms work and to detect and correct errors in algorithms and programs. The computer systems and networks vertical concept explores the internet and the opportunities offer it offers to connect, communicate and collaborate. Creating Media lessons further develops pupils' understanding of selecting, using and combining a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. Across the key stages pupils are explicitly taught how to use technology safely, respectfully and responsibly.

As many of our pupils are new to English, developing language and communication skills across all areas of learning is the key to them grasping powerful knowledge. The computing curriculum develops language through the development of computational thinking throughout the units by clearly identifying key vocabulary, which is explained and developed through meaningful, real-world learning contexts.

At Marlborough Road Academy, the computing curriculum develops pupils' learning in a range of contexts. We intend that pupils will have rich, deep learning experiences that balance all the aspects of computing. Learning computational thinking (problem solving skills) and developing creativity will

Marlborough Road Academy

Computing Intent

allow pupils to exploit technology effectively and appropriately in their future education and work, as well as developing their resilience to change and their ability to adapt flexibly and responsively to the ever-evolving opportunities that technologies provide.

British values are integrated into our computing curriculum. They are relevant in terms of internet safety and technology in our lives. Pupils learn that there are positive and negative aspects of interacting with others online and we expect our pupils to show mutual respect when using technology in school and at home. E-safety and Prevent is embedded through the whole school curriculum using the Evolve program in balance with termly assemblies to address any current issues as they arise to keep children safe on the internet at home and in school. We take an active part in Internet Safety Day on an annual basis. We have the Smoothwall firewall which is monitored at Central Office to ensure that children are monitored and kept safe when online in school.

Implementation

Computing at Marlborough Road Academy at key stage 1 and 2 is taught across six units in each year group with the intention that each unit is taught over a half term. In EYFS, it is taught through by using technology to solve problems and produce creative outcomes. We follow the Teach Computing scheme of work.

In both Key Stages there are some mixed age groups and therefore a two-year cycle has been planned to allow progression throughout the spiral curriculum. Pupils following the mixed-age planning build an understanding of **vertical concepts** in the same way that pupils following the single-age planning would.

All lessons at Marlborough Road Academy are crafted around Rosenshine's Ten Principals of Instruction and these inform the structure of each lesson in the United Learning Curriculum for Computing. We believe in the importance of co-operative learning and use Kagan structures to enable this. Our methods of teaching and learning are chosen to support the development of lively and enquiring minds, which critique and question.

The school uses the commercial scheme 'Teach Computing'. This was selected because long term plans detail the' Powerful Knowledge' that is taught and ensure that there is a clear progression in key skills, both across a year and from year to year, including within a two year cycle for mixed age classes. Each unit provides opportunities for developing computational thinking concepts by using approaches including tinkering. Learning sequences also provide opportunities to develop creativity and solving problems within a meaningful context for applying what is learnt. This scheme also provides opportunities to develop pupil's conceptual understanding alongside opportunities for them to be creative and to apply taught skills, as they become digitally literate. Learning through experimentation, discussion and making are at the core of the scheme. This 'hands on', practical approach supports the development of long term memory and gives pupils with limited technical English a context in which to learn and use new vocabulary.

Details of computing topics are shared with parents at the start of each term, as part of curriculum information for each year group. Termly learning sharing events staged by pupils for their parents/carers feature an element of digital /multi media work.

Marlborough Road Academy

Computing Intent

Impact

The United Learning computing curriculum is progressive and if pupils are keeping up with the learning than they are considered to be making progress.

Regular assessments in lessons, such as flash tests, hinge point questions and reviews of previous learning, enable teachers to assess each pupil's understanding of the curriculum. Pupils build a cloud based personal portfolio of work as evidence of their learning over the lifetime of a project. This allows them to demonstrate their knowledge, skills and understanding over the length of the project, and avoids basing judgements on the outcome of practical tasks alone. These learning journals can include digital forms or a simple Word document to self-reflect and evaluate. The combination of journals and practical tasks then inform teacher assessment to identify and fill gaps in their knowledge and understanding to ensure that pupils make rapid progress.

We give each pupil at Marlborough Road Academy the opportunity to not only strive to achieve academic excellence, but also to recognise and develop their individual talents and become the best person that they can be. With this in mind, we hope that pupils are inspired and enthused by our computing curriculum and will take an interest in the subject with them into the next stage of their education and their lives as adults.

The Teach Computing scheme has been designed to ensure that pupils are equipped with computing skills and knowledge that will enable them to be ready for the curriculum at Key Stage 3.

Enrichment

Coding is run as an after school club and older pupils provide technical support at a weekly homework club.

The school has a significant number of Chromebooks on long term loan to families to support pupil home learning.