Welsh House Farm Community School & Resource Base

COMPUTING

Intent
The Computing intent at Welsh House Farm Community School is for all children to be able to access and interact with a range of computing devices appropriately and confidently. It has been designed so children are becoming increasingly fluent with physical control manipulation of keyboard, mouse and physical robotic systems. The design enables children to enjoy and identify the benefits and positive effects of technology in daily life and developing a 'can do' attitude for solving problems through technology. It also ensures children become literate in computing language and coding sequences and nurtures positive relationships with others through communication technology. By Year 6 pupils will be more independent in their use of technology and will conduct themselves safely and responsibly. Children will be able to use the knowledge and skills enquired throughout their time at Welsh House Farm School to produce digital content and create programs in the three areas of computer science, information technology and digital literacy without support.

We want our children to be a part of a true community school by working together, learning from other cultures, respecting diversity, and appreciating what they have. We are a School of Sanctuary, a Right's Respected School (Silver Award) and provide a strong PSHE curriculum that ensures that everyone is listened to, included, respected, and inspired and valued. We are also committed to ensuring the safety and well-being of ALL. This ethos feeds into the Computing curriculum where children learn to become kind and responsible digital citizens of the world and learn to understand the benefits and uses of a World Wide Web to promote togetherness and collaboration across boundaries and cultures. We want our children to feel empowered to make a difference and affect changes as global citizens to their community and the world in which they live.

We want our children to feel inspired in computing lessons. In addition to there being a current and future demand for digital skills (e.g. the gaming industry), these skills are also vital for our economy post-pandemic. In a world where having digital skills was once desirable by employers, these skills are now a necessary requirement. Currently, roles requiring digital skills pays more than those roles that do not. In addition to this, the ability to master basic digital literacy, perform safe searches, evaluate sources and use critical thinking to assess information provides the ability to become lifelong learners. The computing curriculum is designed to ensure that all pupils have the opportunity to succeed and develop their growth mind-set. The aim is to deliver an engaging curriculum to all pupils and to support the individual needs of all pupils in keeping up with the pace of the scheme of work across the school. We want our children to have no ceiling to their achievements and to grow up wanting to be programmers, content producers, creators or enjoy an exciting STEM career – to grow and flourish!

Implementation
At Welsh House Farm School, we can all be computer programmers. We teach programming using the six areas of computational thinking which are algorithms, decomposition, patterns, logic, abstraction and evaluation. As the National Curriculum is not broken down further than just key stages, careful consideration has been given to how computing should be sequenced. Despite computing not being mentioned in the Early Years curriculum, there are opportunities for children to develop their computational thinking effectively using approaches by Computing at School's (CAS) Barefoot Computing resources. From Year 1 upwards, we follow Teach Computing from the National Centre of Computing Education (NCCE) which is funded by the DfE. The progression of units in computer science, information technology and digital literacy are coherently, systematically and sensitively sequenced towards children cumulatively acquiring the intended knowledge and skills for future learning and employment. These foundations are also met using unplugged opportunities for computational thinking and creativity to enable pupils to better adapt to and understand the technological changes in the future.

We understand at Welsh House Farm School that computing does not solely rely on an end product; that the process is more important to develop key concepts than the end goals. Assessing misconceptions is addressed and teaching key vocabulary is important for embedding concepts in order for children to move forward in their learning. Effective pedagogy in computing includes unplugged learning of new concepts to bring the learning alive, with real word contextualised examples to help children comprehend into their current understanding and embed the new concepts into what they already know. Immediate feedback is given to provide positive reinforcement for learners. Children also have the opportunity to share their work with teachers and classmates.

We want to ensure that we deliver powerful knowledge and skills to our children as they gain confidence and understanding in computing. To develop our pedagogical content knowledge, teachers are provided with an overview of the required knowledge and skills being taught, support on how to teach the topic well and develop the children's outcomes of what to teach and how to teach it, and hands on training of various aspects of the computing curriculum. Staff are constantly made aware of further professional development opportunities in order to enhance their own knowledge and skills of the computing curriculum. Devoted time in staff meetings and teacher INSET days provide even further training to develop our subject knowledge.

To develop understanding in computing, many concepts are first taught through role play or unplugged activities (away from the computer). This leads to conversations and discussions about how computers actually work, developing computational thinking. To promote discussions and understanding, a blended approach is utilised in order to create conversation opportunities and paired opportunities to enhance the children's understanding of concepts, reduce cognitive overload and to build independence and resilience, especially from the teacher. Through these types of activities, key vocabulary and core knowledge and skill are mastered. Our online safety curricula is embedded within the computing and PSHE schemes of work.

Utilising a structured framework develops key concepts and promotes discussion. Using the PRIMM framework of 'Predict – Run – Investigate' ensures children learn how to read code before writing it. This framework, and the 'Mine' / 'Not mine' framework provides children with a deeper learning of key concepts in computing, which enables them to know and remember more throughout their formative years.

The first lesson for each unit of work is used to review the ideas mastered in previous units or to find out what the children already know about the area being taught. Opportunities for retrieval practice are included in computing lessons to ensure knowledge is transferred into long-term memory. Retrieval activities may require children to remember learning from the previous lesson, previous topic or even previous year.

Formative assessment is a powerful diagnostic that is used to implement our computing curriculum. This allows teachers to assess the children's understanding of concepts within the lesson, keeps children engaged, and allows the children to reflect upon their learning (assessment *for* learning). This shows teachers how much a child has learned in 'real time' and we obtain this information through, though not limited to, strategic questioning, quick quizzes, any process that asks children to explain their thinking, retrieval practice or child feedback (pictorial, physical or written). This information informs the teachers of misconceptions to cover immediately or in future lessons, where to pitch the next lesson and to gauge their children's attitudes towards their learning.

At Welsh House Farm School we also use summative assessment in computing, which is the assessment *of* learning. Most Teach Computing units have a summative, independent quiz at the end of the unit for children to sit. This learning is assessed against a benchmark.

In order to assist in the delivering of the computing curriculum, interactive Smartboards are utilised in all classrooms at Welsh House Farm School. There are thirty laptops for use in Key State One and another thirty for shared use in Key Stage 2 in addition to ten Geobooks for intervention use in KS2. Resource Base children have individual laptops. All teachers are supplied with a laptop and Ipad.

Impact

Throughout and at the end of a lesson, children are asked to evaluate and recognise their own success against the learning outcome. After the unit, children carry out an accurate self and/or peer assessment on the work they have produced against the set criteria. The teacher tracks whether children are working towards, meeting or exceeding what is thought to be the national standard for that unit of work in a tracker.

Data is not published nationally for computing. However, the school tracks achievement in computing to ensure children are on target for national expectation at the end of Key Stage 1 and 2. Children's work is kept in individual computing books that are handed up and used by the next year group in order to track progression of knowledge and skills.

Class teachers and the computing lead must have a deeper knowledge of the children and what they can and cannot do (not just their results). The computing subject leader has discussions with children about their learning as it progresses. This forms part of the monitoring process. Children's work and their self-evaluation and assessment sheets guide discussions, to ensure the teacher knows to what depth the new knowledge and skills have been learnt. This informs future planning to prepare pupils for the next stage in order for strong academic progress to be achieved.