Computing – Curriculum Design

"A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world."

National Curriculum Computing -2014

Purpose of Study

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.

What are the aims of the subject?

The national curriculum for computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology

Computing at Rodbourne Cheney Primary School

At RCPS we also follow a broad, balanced and progressive online safety curriculum which has been developed from the Education for a Connected World framework. This curriculum educates our pupils in a wide range of online safety topics to ensure they are aware of potential risks and know how to best protect themselves, as well as teaching them to be positive digital citizens and use technology in a safe and respectful manner. This is implemented through links between other areas of the curriculum like reputation and

bullying in PSHE as well as discrete online safety lessons that are both proactive and reactive to current events.
We also encourage the use of technology across other areas of the curriculum, as well as at home, to give pupils opportunities to apply their skills and knowledge to different contexts.

Why is it important to our school/our children?

We want children to become confident users of computational thinking which will enable them to solve problems using creativity, resilience and critical thinking skills. Once this foundation of knowledge has been established, we aim for our pupils to become confident, independent and digitally literate technology users through quality teaching and a variety of software and apps. At Rodbourne Cheney, pupils are supported and challenged at every stage of their learning, while ensuring that our curriculum is accessible to every child.

How do we help children learn more and remember more?

Children are taught how to use a wide range of software to accomplish a variety of goals. Pupils access devices including laptops, iPads and programmable robots to expose them to different ways of implementing computational thinking to solve problems.
We offer a balanced coverage of the key strands of the National Curriculum; Information Technology, Computer Science and Digital Literacy. Children experience all three strands in each year group, with the subject knowledge and vocabulary becoming increasingly complex, building upon prior learning and demonstrating progression. One example would be how children in Key Stage 1 learn what algorithms are, before going onto the design stage of programming in Key Stage 2, where they design, build and debug their own algorithms.

How do we ensure that children are enthused about the subject?

At Rodbourne Cheney Primary School, we deliver a carefully designed curriculum that enthuses and encourages pupils to embrace and utilise new technology in an evolving digital world. We will follow the 'Teach Computing' Curriculum from the NCCE (National Centre for Computing Education) for our computing lessons. A theory-based approach combined with practical sessions underpins our curriculum to allow our pupils to understand the concepts of computational thinking and implement their skills in real world contexts while maintaining their online safety.