Computing Curriculum Statement

Vision for Computing at Foxhills

Ensure that pupils develop a curious, creative and respectful attitude towards using digital technology, through the exploration and study of computer science, digital literacy and information technology, especially with regards to their own and other's safety.

Computing is a subject that gives children the knowledge needed to understand and change the world. There are three main content areas that make up the computing curriculum. The central pillar to succeeding in computing, is gaining a strong knowledge of computer science. This underpins the rest of the computing curriculum because the foundational knowledge required helps children understand and interpret the other areas: information technology and digital literacy.

The computing curriculum at Foxhills Junior School has been designed to enable children to develop as confident, competent, safe users of technology, who are able to use their knowledge to problem solve effectively. We aim for our children to be forward thinking, creative and able to take advantage of all opportunities provided to them at secondary school and in later life. Therefore, it is our responsibility to ensure all children are digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – in order to become an active participant in an ever-changing digital world.

The disciplinary knowledge for computing at Foxhills is defined below.

Sequencing of the Computing Curriculum

Effective pedagogy is at the heart of good teaching and learning; successful computing teaching combines knowledge of the subject with evidence-based teaching practices. The mapping across the Federation is led by the teaching of key concepts – this supports all students with the acquisition of knowledge through the exploration of key terms and vocabulary, which build in complexity from Year 3 to Year 6.

Digital Literacy

All year groups follow the same learning pathway, beginning in Autumn 1 with a unit on digital literacy. Digital literacy is defined as the skills and knowedge required to be an effective, safe and discerning user of a range of computer systems; therefore, it provides a solid foundation upon which to develop computational thinking throughout the year.

Information Technology

During Autumn 2, all year groups will study an Information Techology unit, which provides them with context for the use of computers in the world around them.

	Computer Science (1&2) During the Spring term, all children will study two computer science units. Computer science is seen as the core of computing and underpins the whole of the subject. Computer science provides the foundational knowledge required to understand and interpret how computers and systems work, including coding, programming and data. One unit of study will be focussed on information and data, the other on programming. **Information Technology (2)** In Summer 1, all year groups complete a further information technology unit, appling skills and knowedge in a different context. **Computer Science (3)** Finally, in Summer 2 pupils complete a third unit of Computer Science on programming. This allows children to consolidate their knowledge from Spring 1 and apply this within a variety of contexts. Alongside each unit, children study carefully selected units of online safety based on *Education for a Connected World* online guidance from the UK Government. This has been mapped to support the computing curriculum, whilst also allowing flexibility should there be any pertinent issues which arise within a year group at any given time.
What are the knowledge types and how will they be taught?	The curriculum at Foxhills Federation is knowledge-based because our staff are united by the belief that knowledge promotes intellectual growth: the more you know, the more you understand the world. Knowledgeable children are confident and can broaden their experiences. The knowledge in our computing curriculum has been split into three different knowledge types. Substantive knowledge (knowing that…), disciplinary knowledge (knowing how…) and conditional knowledge (knowing when and knowing why…). Substantive knowledge is comprised of established facts. Children are taught these facts and are taught this knowledge through highly effective teacher modelling. This knowledge is presented to children in different ways and is reinforced through the use of knowledge organisers, prompts and WAGOLLs. Disciplinary knowledge refers to the methods of working, in this case; how to use computers effectively and safely. Teachers model this in different ways depending on the needs of different children. All children are encouraged to have a go, independently, prior to personalised feedback being given. Children then work with adults to develop their disciplinary knowledge further, to ensure their learning is deep and meaningful and that they are not just memorising disconnected facts. Conditional knowledge enables children to apply their substantive and disciplinary knowledge. It is important that children know the contexts in which their knowledge may or may not be appropriate.
How is the curriculum implemented?	At Foxhills, we aim for our children to become computer literate by being able to use computational thinking and creativity to understand and change the world. The curriculum has been designed to teach children the powerful knowledge about how computers and computer systems work, and how they are designed and programmed. Learners will have the opportunity to gain an understanding of computational systems of all kinds, whether or not they include computers. Powerful knowledge refers to the knowledge the school has identified as being the most crucial content that all children must acquire to ensure they meet the milestones for the end of Key Stage 2 in computing.

	When delivering the computing curriculum to our children, teachers consider both pedagogical knowledge and pedagogical content knowledge. Pedagogical content knowledge refers to the link between what the children need to know (our knowledge) and how to teach it; knowledge of pedagogy, knowledge of pupils and teacher attitudes and beliefs (relationships, accountability and commitment). When considering pedagogical knowledge, teachers think about the best ways for the subject to be taught and delivered (based on our disciplinary understanding).
Adaption and variation	In order to develop subject specific understanding, our computing concepts are taught discretly. Discrete teaching is necessary because children need time to develop skills and practise using equipment. These skills are modelled and practised repeatedly to support children in developing unconscious competence for them to be able to use a range of technology effectively throughout their lives. Typically, learning in Computing takes the form of: • Hardware familiarisation • Software familiarisation • Following and giving instructions • Cause and effect • Storing and retrieving data • Editing and improving based on feedback • Experimenting and refining All children are taught about the uses of technology and cause and effect through computing teaching. There is a strong focus on skill acquisition as this supports all children in becoming computer literate. The school has identified the crucial knowledge that all children must acquire and presents this knowledge in different ways to support acquisition for individuals. Effective provision for pupils with SEND includes quality first teaching based on accurate assessment of learning; pre-teaching of crucial knowledge and skills; careful mixed-attainment pairings to enable pupils to learn from one another; adult support where appropriate; and support to access vocabulary and dual-coding in sources of knowledge. At Foxhills, we believe that every pupil, regardless of their background, can become computer literate. Children who are working at greater depth are challenged by tasks which promote deeper connection-making and critical thinking. They are asked to utilise technology for a range of tasks and are asked to be an expert for their peers to share their knowledge. Assessment for learning is used in lessons and between lessons to ensure tasks are appropriately pitched.
Impact	A child who has acquired the crucial knowledge and developed proficiency in computing, will demonstrate the characteristics of effective learning: • Can solve problems and think step by step • Can be exact and pricise • Can remember key functions of technology and devices • Can use a range of devices • Can keep myself safe online • Can open, edit and save my work • Can know what to do when things go wrong