# A GUIDE TO CONPUTING AT LONGNOOR

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# Vision

At Longmoor, our Computing curriculum ensures that all children receive a high-quality computing education that equips them with the knowledge and skills to thrive in a rapidly evolving digital world. Computing has deep links with mathematics, science, and design and technology, providing insights into both natural and artificial systems. Our curriculum is designed to develop computational thinking, creativity, and problem-solving skills, while also fostering cross-curricular learning opportunities.

Our approach enables children to build their knowledge and skills across four key areas:

- Computer Science Understanding programming, algorithms, and computational principles through repeated practical experience of writing computer programs to solve problems.
- Information Technology Evaluating and applying technology, including new and unfamiliar technologies, to analyse and solve problems.
- Digital Literacy Becoming responsible, competent, confident, and creative users of technology.
- Online Safety Developing an awareness of responsible digital behaviour and staying safe online.

We ensure that pupils gain hands-on experience by applying these skills to produce purposeful digital outcomes. Through this, we prepare them for their future education and careers while embedding the principles of digital citizenship. Our curriculum empowers pupils not just to use technology but to understand and shape the digital world around them.

# **Curriculum Design**

As the curriculum builds year on year, 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.

We follow the progression of skills set out in the Kapow scheme, which closely aligns with the National Curriculum. This scheme is tailored to suit the hard/software which we have available in school. It also satisfies the objectives of the DfE's Education for a Connected World framework. This guidance was created to help equip children for life in the digital world, including developing their understanding of appropriate online behaviour, copyright issues, being discerning consumers of online information and healthy use of technology.

Therefore, our scheme of work is designed with three strands which run throughout the children's time at Longmoor. These three main strands our taught within each year group and how these skills develop year on year to ensure we continue to build on children's learning.

### **Computer Science**

- 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.

### **Information Technology**

• Can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems.

### **Digital Literacy**

• Are responsible, competent, confident and creative users of information and communication technology.

The implementation of our curriculum ensures a broad and balanced coverage of the National curriculum requirements, and our 'Skills showcase' units provide pupils with the opportunity to learn and apply transferable skills. Where meaningful, units have been created to link to other subjects such as science, art, and music to enable the development of further transferable skills and genuine cross- curricular learning. Our scheme of work is organised into five key areas, creating a cyclical route through which can develop their computing knowledge and skills by revisiting and help embed new learning.

The Kapow Primary scheme is organised into five key areas, creating a cyclical route through which pupils can develop their computing knowledge and skills by revisiting and building on previous learning:

- Computer systems and networks
- Programming
- Creating media
- Data handling
- Online safety

The Kapow modules enable children to study in depth key computational understanding, digital skills and vocabulary. Each module aims to activate and build upon prior learning, including EYFS, to ensure better cognition and retention. Each module is carefully sequenced to enable children to purposefully layer learning from previous sessions to facilitate the acquisition and retention of key knowledge. Individual modules and lessons build on knowledge that has previously been taught. Outcomes are revisited either later in the year or in the following year as part of a spaced retrieval practice method to ensure children retain key knowledge and information.

# **Teaching Pedagogy**

Our Computing Curriculum is structured to ensure children receive a progressive development of knowledge, skills and understanding throughout their time at Longmoor. Computing lessons often utilise child-led activities where the pupils have the choice and control of what they produce as their end product. Through structuring lessons this way, it encourages children to develop their collaborative and problem-solving skills and supports their development into becoming organised and logical learners as a result of the expectations of their digital learning journals.

Computing and technology are threaded throughout the Longmoor Early Years curriculum with the firm aim of ensuring that learners enter Year One with a strong foundation of knowledge and skill. The curriculum is linked to developing early listening skills, ability to follow instructions and logically problem-solve. The integration of technology in learner's home lives should be enhanced by their understanding of how we use technology in school to access and enable learning. E-safety skills supplements learner's understanding of how to navigate the ever-changing world of technology and links with their personal safety skills in the wider development of the child. Exploration and play with technology means that learners develop a deep familiarity with equipment and vocabulary in order to have a strong start in Key Stage One Computing.

In Key stage I, children develop their knowledge and skills building on their experiences in EYFS, learning the how to login and navigate their way around a computer, developing their mouse skills. They will also develop early programming skills and learn what data is and the different ways it can be represented. Children will learn exactly what a computer is and how inputs and outputs work. In year 2, pupils will use Scratch Jr to develop their programming skills.

In Lower Key stage 2, children continue to build on the skills previously taught. They will be introduced to the concept of networks, learning how devices communicate. Children will build on their Scratch Jr work in Key Stage 1 by using the more advanced computer-based application called Scratch learning to use repetition or 'loops' in year 3 and progressing to using variables in coding in year 4. Children will also develop their research, word processing, and collaborative working skills whilst learning how web pages and web sites are created.

In Upper Key Stage 2, children develop the complexity of the skills taught previously, applying programming skills to create sounds and melodies. They will learn about the meaning and purpose of programming through the Micro:bit unit. This will progress to using the programming language of Python when they get to year 6. Pupils will also learn about Barcodes, QR codes and RFID in the Data unit.

Lessons incorporate a range of teaching strategies from independent tasks, paired and group work as well as unplugged and digital activities. Therefore, this variety means that lessons are engaging and appeal to all teachers and children with a variety of learning styles. Knowledge organisers are key to each unit supporting pupils in building a foundation of factual knowledge by encouraging recall of key facts and vocabulary. All pupils have access to explore computing in their own time, through break times and continuous provision allowing the children to improve their computer skills independently.

# **Subject Specific Adaptations**

At Longmoor, we are committed to providing our children with enriching experiences that broaden their horizons, particularly as they grow up in one of the most deprived areas of the country. We ensure that all pupils have access to a wide range of opportunities in computing, both inside and outside the classroom, that they may not have otherwise experienced.

Every child takes part in weekly computing lessons where they engage with cutting-edge technology, including iPads, Chromebooks, Beebots, and the latest educational apps. These lessons equip them with valuable digital skills that they can apply both in school and at home, fostering confidence, creativity, and problem-solving abilities.

Our Computing Curriculum is designed to be fully inclusive, ensuring that every learner can reach their potential. We make adaptations to support all pupils, including those with SEND, through high-quality teaching, differentiation, and targeted adult or small-group support. Learning objectives are structured to provide appropriate levels of challenge, from foundational support to opportunities for deeper exploration. Open-ended tasks encourage critical thinking, while problem-solving activities develop essential skills such as prediction, sequencing, abstraction, decomposition, and debugging.

To ensure equitable access to technology, we can, where needed, provide additional resources tailored to individual needs, including height-adjustable screens, eye-gaze technology, and touch-screen monitors. At Longmoor, we believe that every child should have the tools and opportunities to thrive in the digital world, empowering them to succeed in an increasingly technological society.

## Assessment

Assessment is always used to inform future practice. It is important that this takes place at the point of teaching and learning, enabling staff to address any misconceptions at that point and ensure understanding. Assessment within the lesson may take a number of forms, such as quizzes, vocabulary match to definitions, reflection on previous tasks using pictures.

In each lesson, teachers ensure children are assessed against the learning objectives and planning is responsive to gaps and misconceptions. Each unit has a unit quiz to assess the retention of new knowledge and vocabulary. The impact of our computing curriculum can clearly be seen in projects that children create, as well as presentations created as digital content. Programs that children write code for are saved digitally and accessed by teachers to ensure achievement of learning objectives. Children have the opportunity to self-assess the content they have created, as well as peer-assess. Within each lesson, every child is responsible and accountable for their own digital learning journal, in which they outline their learning and how they have been successful in meeting the task of the lesson.

In each year group, children use previously learned skills and apply them to new software and coding programs. Our pupils leave Longmoor equipped with a range of knowledge and skills that enable them to succeed in their secondary education and be active participants in the digital world. At Longmoor, our philosophy is that broad and balanced leads to great outcomes and meeting end points at the end of each key stage.

The impact of Longmoor computing curriculum is measured through the following:

- Vocabulary and knowledge are assessed at the end of each lesson and at the end of each sequence
- Pupil voice
- Progress evident in children's confidence and record of experiences.
- Seeking views of parents where appropriate

