



Computing

Our ambition is for children at Holmer Green Junior School grow into confident, competent digital citizens who have developed their computational thinking and can use technology creatively.

Computing has links with mathematics, science and design and technology and provides the children with practical opportunities to use and develop their knowledge with a cross-curricular approach. The core of the computing curriculum is computer science; this is where children are taught how digital systems work and develop programming skills. Building on these skills, the children are also taught to use different devices to create programs and a range of content. This enables the children to become digitally literate.

By the time they leave our school, our pupils will be able to use, and express and develop their ideas through, information and communication technology in a way that will prepare them for their future and the rapidly changing digital world in which they will grow into adults.

Aims

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

Pupils should be taught to:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts;
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output;
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs;
- understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration;

- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content;
- select, use and combine 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;
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Our Computing Curriculum

Children in every year group will gain a range of skills and knowledge through their weekly Computing lessons as well as through using devices to support their learning across the curriculum. We draw on a range of resources for our lessons including the Teaching Computing resources from the National Centre for Computing Education, Barefoot Computing and the Rising Stars SwitchedOn scheme.

In Computing lessons, pupils will be challenged through open-ended tasks and questions which encourage them to apply their learning independently in a variety of ways. Pupils will be supported through repetition of key vocabulary and the use of scaffolds, particularly when coding. For instance, they might be provided with the Scratch blocks they need to complete a task and then they would have to sequence the blocks to create the algorithm, rather than having to search for the blocks that they need. Pupils will also be encouraged to work in mixed-ability pairs, providing the opportunity for more-able pupils to deepen their learning through explaining it to another child and for less-able pupils to be supported by their peers as well as their teacher. Where necessary, devices will be adjusted to address special needs, such as text being made larger, text-to-voice functions being used or colours on the device adjusted.

Each year group will have the opportunity to experience code, using Scratch and Python to develop animations and games as well as building and controlling simple robots. These skills progress as the children move through the year groups; from sequencing simple code in Year 3 to create an animation, to developing games using repetition and selection in Year 4 and 5 and, finally, progressing from using block-based coding to more complex programming language such as Python in Year 6.

In addition, they will also use desktop computers and iPads to create content including video, audio, images, eBooks and 3D models, developing their creative skills so that they can learn to use new programs and create their own content independently. They will use a range of programs across their time at our school including the Microsoft 365 suite of apps, iOS apps such as iMovie and Garageband and specific educational apps such as Seesaw.

Pupils will also learn about computer networks, the internet and how to use a range technology safely, supported by online safety learning in the PSHE curriculum. Lessons about databases will provide the children with opportunities to analyse, sort and present data; a key skill for future life.