



I think it's fair to say that personal computers have become the most empowering tool we've ever created. They're tools of communication, they're tools of creativity, and they can be shaped by their user. (Bill Gates)

Moorbrook Computing

Intent

At Moorbrook School our intent is to equip all our pupils with the skills and knowledge in computing to adapt in the ever evolving world of technology. For this to happen we want to model and educate our pupils on how to use the technology positively, responsibly and safely.

Through a very creative but challenging and adaptable curriculum for the needs of our pupils we hope they will become motivated and aspirational seekers of a digital world that they can change as they pursue their future careers.

Our pupils will learn the fundamentals of computing which is broken down into **three main strands: Computer Science, Information Technology and Digital Literacy.**

We carry out a detailed review at the end of every academic year in preparation for the next. We continuously review and monitor our curriculum and make the necessary adjustments throughout the year accounting for delays and gaps. Our curriculum meets the needs of all pupils across the ability range through supportive and inclusive lessons.

Key stage 3 have clearly outlined key knowledge and practical application skills. Our curriculum is planned and sequenced so each new module builds upon what has been taught previously.

Computer Science: pupils will be taught the principles of information and computation, how digital systems work and how to use this knowledge through some programming.

Information Technology: pupils will learn how use computers for functional purposes, such as collecting and presenting information or using search technology. Such activities would include word processing, photographs and images, videos and animations, spreadsheets and databases.

Digital Literacy: pupils will be taught how to use technology safely and effectively to express themselves and develop their ideas through information and communication technology to enable them to become active participants in a digital world. This will also include how our pupils recognise inappropriate content, contact, and conduct and how to report concerns.

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

Implementation

For the aims to be achieved Key stage 3 is as follows (CS Computer Science, IT Information Technology, DL Digital Literacy)

CS	Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems Understand several key algorithms that reflect computational thinking [for example, algorithms for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions Understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal] Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems Understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits
IT	Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users Create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability
DL	Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns

Computing allows pupils to repeatedly practice key knowledge and skills learnt in mathematics in a variety of scenarios whether that is through use of spreadsheets or underlying computation behind the computer programs. Computing also aids literacy skills through countless opportunities from reading through to the use of word processors.

The Key stage 3 curriculum is interwoven with the qualifications we offer at Key stage 4 where appropriate and relevant.

Key Stage 4

In computing pupils are able to access a broad and balanced curriculum that allows them to have the opportunity to study aspects of information technology and computer science at sufficient depth to allow them to progress to higher levels of study or to a professional career.

All pupils will be taught to:

- develop their capability, creativity and knowledge in computer science, digital media and information technology
- develop and apply their analytic, problem-solving, design, and computational thinking skills
- understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to report a range of concerns

Pupils in year 7 have a lesson a week, year 8, 9, and 10 have 2 lessons a week and year 11 3 times a week to enable the variety of topics to be covered including the qualifications they complete in Key stage 4.

The topics pupils are taught cover a wide range of resources that allow a differing approach to engagement such as: power point presentations, unplugged activities, research methods, video clips, demonstrations, practical experiences with surrounding reading and discussion throughout, this therefore allows the computing curriculum to be an inclusive, memorable learning experience for all pupils within our community and opportunities for them to also engage with real life experiences.

The computing curriculum we offer also allows pupils to use cross curricular links for example literacy using word and comics/animation, numeracy use of spreadsheets for calculations, food technology for making pizzas for Pizza Co topic and science for how computers work.

The cross curricular links embed the knowledge and skills we use in computing and can be related to everyday life skills when pupils leave.

Impact

When pupils begin their computing journey at our school they learn the skills that are needed and by revisiting and building on key concepts they further deepen their knowledge. By the end of Key stage 3 they will have the basic knowledge to prepare them for Key Stage 4 giving our pupils an extrinsic recognition of their progress.

When reaching key stage 4 pupils are encouraged to complete Entry Level 3 Essential Digital Skills progressing onto Level 1.

At Moorbrook we also offer a key stage 4 option for AQA Unit Awards in Computer Science that students engage in for 1 lesson a week.

At our school we inspire our pupils to enjoy and value the curriculum we deliver. We will regularly ask the WHY behind their learning and not just the HOW. We want pupils to discuss, reflect and appreciate the impact computing has on their learning, development and well-being.

Finding the right balance with technology is key to an effective education and a healthy life-style. The way pupils showcase, share, celebrate and publish their work will best show the impact of our curriculum.

Reading within computing is a vital skill not only on screen but also off screen. Within the curriculum we have various times where pupils often read from the computer screen when completing research/tasks, at other times pupils read out loud from a range of sources that allow them to develop confidence and self-expression.

Throughout the learning in computing pupils become digital citizens who have opportunities and experiences that promote our cultural diversity. In our lessons across all of the year groups we deliver a range of themes that include broadening the pupil's thoughts ideas and life experiences such as:

- investigating social medias and their digital footprints/future implications
-Online Safety
- using emails and how formally/informally how these are set out - Software
- delivering power point presentations to peers and learn how to discuss yet evaluate performances. -Online Safety/Research Projects
- how to recognise fake news/stories -Online Safety
- understand cybercrime and why it may happen with consequences
- consider the likes/dislikes of food and creating a menu Pizza Co module
- history of technology and how it has changed overtime

The above gives a snapshot of just some of the parts we include to provide not only a cross curricular experience but a diverse one too.

It is through the implementation of our curriculum that lays the foundations for pupils to move onto a future pathway with a knowledge and understanding of technology and our digital world.