Computing Curriculum

We need technology in every classroom and in every student and teacher's hand, because it is the pen and paper of our time, and it is the lens through which we experience much of our world.
David Warlick

At our school, we understand the importance in preparing pupils for being active participates in an ever increasing digital world, whereby information and communication technology is being used by humans to support solving a widening range of problems.

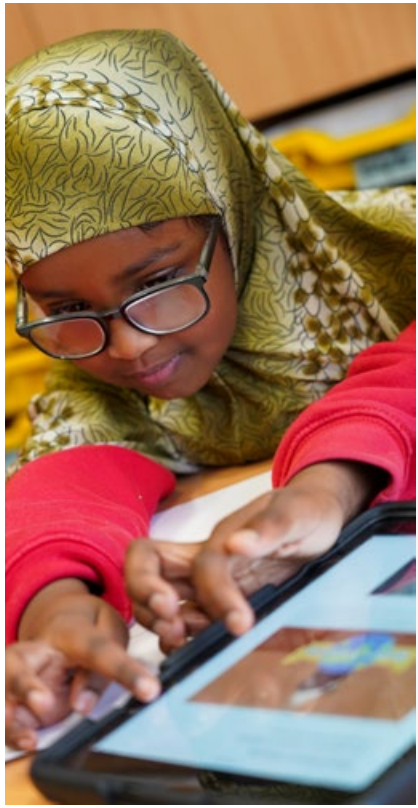
We understand the importance of developing individuals through a curriculum that is based on the expectations in the National Curriculum, which is progressive and provides opportunities to revisit and revise learning. This fully equips pupils for their later learning in Key Stage 3 and 4 and ultimately later life.

The computing curriculum has been carefully designed to meet the National Curriculum aims and the school's underpinning principles of computing. These underpinning principles are:

- use technology, such as application software e.g. word processing and graphics software to effectively communicate information and ideas;
- develop computational thinking to support understanding of computer science;
- develop responsible and safe approaches to using technology;
- expose pupils to a wide variety of technology to develop their digital fluency;
- provide opportunities to think and express themselves creatively;
- apply knowledge into a wide variety of contexts, both in school and outside.

The curriculum has been organised into 6 clearly defined learning journeys, that have been sequenced specifically to build on prior learning, both across the school and within individual year groups. These learning journeys are:

E-Safety | **Digital Fluency** | **Programming** | **Networking** | **Multimedia** | **Data Processing**



E-Safety

Each year group starts their computing journey with a bespoke, age-appropriate E-Safety unit that ensures pupils can keep themselves safe and make responsible choices.

This learning is then revisited and reviewed throughout the year, during the follow on units and opportunities provided in the wider curriculum. Where necessary, additional E-Safety sessions are provided to address concerns over how pupils may be using technology outside of school.

Digital Fluency

Digital fluency units ensure pupils have the foundational knowledge and skills that allow them to access the rest of the learning journey confidently, thus reducing cognitive load in later units.

Aspects of these units include developing key skills such as typing, storing and retrieving digital content.

The content of these units follows the E-safety units and provides the prerequisite knowledge for the follow on units.

Programming

In Key Stage 1, pupils develop understanding of programming through developing understanding of simple algorithms, using real life simulations, manipulatives and then software.

In Key Stage 2, pupils build on their learning in Key Stage 1 by designing, writing and adapting programmes using more complex software. Pupils will build up to being able to create algorithms that incorporate variables. Programming units following on from and build upon the content from the Digital Fluency units.

Programming units precede Networking, Multimedia and Data Processing to provide the teaching of computational thinking that is used to better enable learning in those units of work. Programming is taught in all year groups.

Networking

Pupils in Key Stage 1 are exposed to and are taught to recognise common uses of technology, both in school and at home.

In key Stage 2, all year groups have a bespoke networking unit which is age appropriate. Pupils in Key Stage 2 are taught to understand networks, prior to learning about the world wide web and are also taught how to use a variety of communication mediums and search engines.

Pupils use more complex platforms and search techniques as they progress through Key Stage 2 and are taught to evaluate their effectiveness.

Multimedia

Pupils in key Stage 1 become competent in using a wider range of devices and software, which are age appropriate. Pupils work with creating and handling simple images, sound clips and text.

As pupils move to lower Key Stage 2, they will be fluently using a range of devices and begin to incorporate a variety of media to produce a single output.

During upper Key Stage 2, pupils build on their existing knowledge and use more complex software to manipulate and edit different media.

Data processing

In Key Stage 1, pupils begin by handling and using physical databases to organise, store and retrieve data. They will also use simple software to create branching databases, tables and charts.

As they move to Key Stage 2, pupils begin to use spreadsheet based programs to handle data and present this in tables, charts and graphs. They also begin to learn about using formulae to solve calculations.

By the end of Key Stage 2, pupils are using more complex formulae and creating graphs that use continuous data. This unit is taught prior to multimedia to enable pupils to incorporate their learning into a variety of multimedia projects.

Application and cross curricular links

We understand the importance of revisiting and revising learning to ensure that pupils can know and remember more. The computing curriculum has been carefully designed with specific opportunities identified to revisit content from other subject disciplines, such as: mathematics, design and technology, reading and art. Likewise, there are strategically planned opportunities within wider subjects to revisit and apply learning from computing, such as presenting findings from a science enquiry.