Computing Intent

Computing at drb Ignite Trust, is recognised for its importance in preparing pupils for being active participants 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 for England, which is progressive and provides opportunities to revisit and revise learning. This fully equips pupils for their later learning in key stage three and four 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 six principles are used to guide teaching and learning on current and emerging technologies, such as Artificial Intelligence. These underpinning principles are:

- using 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 current and emerging technology, such as Artificial Intelligence;
- exposing pupils to a wide variety of technology to develop their **digital fluency**;
- providing opportunities to think and express themselves **creatively**;
- **applying 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 include: E-Safety, Digital Fluency, Programming, Networking, Multimedia and 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 academic 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 following 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. These units allow opportunities for pupils to become proficient and competent in use basic functions that are embedded within a wide range of software. Pupils are provided with direct teaching on common pieces of digital devices, such as monitors, keyboards and smart speakers.

Programming:

In Key Stage 1, pupils develop knowledge of programming through developing the 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 programs using more complex software. Pupils work towards being able to create algorithms that incorporate variables.

Networking

Pupils in Key Stage 1 begin to explore how digital devices can connect with each other through wireless or wired means. Pupils begin to learn about how this connectivity can be used to share and find out information. They also discover how devices in different locations enable people to stay connected. When moving into Key Stage 2, pupils are taught about different types of networks as well as how the internet can be used to facilitate connectivity. They explore how emails and websites can be used to communicate information and share ideas. Pupils also explore the threats and potential hazards that are related to networked computers or devices, such as computer viruses, phishing and harmful content. Teaching of how to stay safe online, and with connected devices, is a fundamental aspect of these lessons.

Data processing

In Key Stage 1, pupils begin by handling and using physical databases to organise, store and retrieve data. They will also begin to use simple software to create branching databases, tables and charts. As they move to Key Stage 2, pupils will begin to use spreadsheet-based programs to handle data and present this in tables, charts and graphs. They will also begin to learn about using formulae to solve calculations. By the end of Key Stage 2, pupils will be using more complex formulae and creating graphs that use continuous data.

Multimedia

Pupils in Key Stage 1 will become competent in using a wider range of devices and software, which are age appropriate. Pupils will 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 will build on their existing knowledge and use more complex software to manipulate and edit different media. Pupils are taught to create increasingly complex outcomes such as videos incorporating stop motion animation and green screen technology.

Application and cross curricular links

At DRB Ignite Trust, 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. We recognise that integrating learning from computing into other subjects not only has benefits for academic learning, but also pupil engagement and enjoyment. Digital devices are commonly used by teaching staff to adapt learning opportunities so that they are accessible to all pupils.