Computing

Computing is important in primary education because it enables kids to search for the information they need and to organize what they have found. As children progress through the school system, they become increasingly responsible for their own learning.

Intent

At Middlethorpe we believe that it is vital for all our pupils to learn from and about Computing and Technology, so that they can understand the world around them. Through teaching our computing curriculum, we aim to equip our children to participate in a rapidly changing world where work and leisure activities are increasingly transformed by technology. It is our intention to enable children to find, explore, analyse, exchange and present information as well as having the skills to manipulate, develop and interpret different forms of technology in an ever-changing world.

In such a fast-moving curriculum, we are constantly looking at new ways of delivering relevant and exciting activities, while still delivering the fundamental skills needed for computing. Using technology safely and responsibly is a main priority and ensuring all pupils are able to use the internet and equipment appropriately is of paramount importance. We encourage our pupils to make links across the curriculum, the world and our local community, to reflect on their own experiences, which are designed in our curriculum, allowing horizontal and vertical links with previous year groups.

The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, 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 aim to develop the following essential characteristics of computer scientists:

- An extensive base of Computing knowledge and vocabulary
- Fluency in Computing enquiry and the ability to apply questioning skills as well as effective presentation techniques
- The ability to express well-balanced opinions rooted in very good knowledge and understanding about current issues in society and internet safety
- A genuine interest in the subject and a real sense of curiosity about the world and the uses of Computing in our everyday lives
- 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

Leaders have carefully selected the knowledge and skills children at Middlethorpe require to fulfil the aims of the subject. The long term plan takes in to account the strong links with mathematics, science and design technology, the content of the National curriculum and that children become digitally literate, able to use, develop and express themselves through the use of Computing . Key concepts have been identified that children encounter at different stages of their educational journey and then revisit repeatedly. The content has been mapped into units for each term. During the term Autumn 1 the whole school has a focus of internet safety. Autumn 2 and Summer 1 has a focus of digital literacy. Spring 1 and Summer 2 have a coding focus: to understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. Learning is sequenced and builds progressively and where possible links have been made to other subject areas. When children are not studying Computing, learning across other subject areas and the wider curriculum provides opportunities to apply their computing knowledge and skills where ever possible.

Within a block of Computing the key knowledge, skills and vocabulary have been identified for teachers to ensure that content and concepts are progressive across the whole school. Knowledge organisers are designed to support children in their knowledge acquisition and are used continuously through units to support children in recalling and retaining the key knowledge and vocabulary. Low stakes quizzing is also used as a strategy to support children in knowing more and remembering more. All units begin with children investigating what key concepts are and what they are not. This is designed to support children in making links in their learning. Children then use a range of computing skills to obtain and apply new and existing knowledge. Such skills include digital devices and programs to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. Opportunities are provided to present their computing knowledge, learning and understanding in a range of ways. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, 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 . Consideration is given to how children who grasp concepts more rapidly and those learners who need more support are catered for within Computing lessons.

Impact

Our Computing curriculum is high quality, well thought out and is planned to demonstrate progressions of knowledge and skills. If children are keeping up with the curriculum, they are

deemed to be making good or better progress. In addition, we measure the impact of our curriculum through the following methods:

- By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study
- An end of unit task or end product giving children the opportunity to apply their computer skills

Outcomes in Computing evidence a broad and balanced curriculum and demonstrate children's acquisition and retention of identified key knowledge. The ultimate impact of our Computing curriculum is that our children will have a sound understanding of the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation and how Computing can affect and help our everyday lives.