



# St Hugh of Lincoln RC Primary School



## COMPUTING

### Intent

Computing is an invisible footprint across all aspects of a child's life. A high-quality computing curriculum equips children to use computational thinking and creativity to understand and change the world. Computer Science is the core of computing where children are taught the principles of information and computation, how digital systems work and how to put this knowledge to use through programming. From here pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that our children are digitally literate; able to use, express themselves and develop ideas through ICT as participants in the digital world and in the future workplace.

The overall aim for Computing is 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

And to ensure that teachers develop confidence and competence to use Computing (ICT) in the effective teaching of their subject.

Computing (ICT) offers opportunities for pupils:

- to develop their ICT capability and understand the importance of information and how to select and prepare it.
- to develop their skills in using hardware and software so as to enable them to manipulate information.
- to develop their ability to apply ICT capability to support their use of language and communication.

- to explore their attitudes towards ICT, its value for themselves, others and society, and their awareness of its advantages and limitations.
- to develop good Health and Safety attitudes and practice.
- to provide interaction between parents, children and staff.
- to meet their individual needs and abilities.

## The Early Years Foundation Stage

It is important in the foundation stage to give children a broad, exploratory-based experience of Computing (ICT) in a range of contexts, including the outdoor classroom environment. Computing (ICT) is not solely based upon the use of computers. The Early Years Foundation Stage learning environments should feature Computing (ICT) scenarios based on real life experience, for example, through role play. Children gain confidence, control and language skills through opportunities to 'paint' on the whiteboard, programme a robot (Bee-Bot) and remote control cars. The children also have daily access to ipads. Loaded onto these Ipads are 'apps' which are suitable for the developmental age range and link to various areas of the EYFS curriculum. The children also have access to recording devices that can support children to develop their communication skills.

## Key Stage 1

By the end of key stage 1 pupils should be able to:

- Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following a sequence of instructions
- Write and test simple programs
- Use logical reasoning to predict and computing the behaviour of simple programs
- Organise, store, manipulate and retrieve data in a range of digital formats
- Communicate safely and respectfully online, keeping personal information private, and recognise common uses of information technology beyond school.

## Key Stage 2

By the end of key stage 2 pupils should be able to:

- Design and write 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; generate appropriate inputs and predicted outputs to test programs
- Use logical reasoning to explain how a simple algorithm works 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
- Describe how internet search engines find and store data; use search engines effectively; be discerning in evaluating digital content; respect individuals and intellectual property; use technology responsibly, securely and safely
- Select, use and combine a variety of software (including internet services) on a range of digital devices to accomplish given goals, including collecting, analysing, evaluating and presenting data and information.

## **Implementation**

Computing is taught using a blocked curriculum approach with discrete lessons. This ensures children are able to develop depth in their knowledge and skills over the duration of each of their computing topics.

As a school we use the scheme of work : Rising Stars ‘ Switched on Computing’

The scheme of work has been moulded to best fit the needs of our pupils and to ensure progression throughout the school. The three main elements of the computing curriculum are at the forefront of the long term plan, as is the need to ensure continuity and progression across our two year cycle. The three main elements are shown in detail below.

### **Digital Literacy**

Elements studied will include communicating, collaborating and E safety, multimedia, digital imagery – including Internet services – on a range of digital devices to design and create a range of programmes, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting, data and information.

### **Computer science**

Elements studied will include control and monitoring, floor and screen beebots, programming, modelling and simulation, using programs such as ‘Scratch’, ‘Scratch Jr’, ‘Daisy’ and ‘Beebot’ apps.

In Key stage 1 pupils will be taught to:

Understand what algorithms are, how they are implemented as programs on digital devices, and that programs executed by following precise and unambiguous instructions. Create and debug simple programs, use logical reasoning to predict the behaviour of simple programs and recognise common uses of information technology beyond school.

In Key stage 2 pupils will 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 programmes, work with variables and various forms of input and output.

### **Information Technology**

Is about the use of computers for functional purposes, such as collecting and representing information, or using search technology. This is taught discretely through the planned scheme of work and there are opportunities for cross curricular work to take place also. We have laptops, iPads, chromebooks and interactive whiteboards to ensure that all year groups have the opportunity to use a range of devices and programs for many purposes across the wider curriculum. Employing cross-curricular links motivates pupils and supports them to make connections and remember the steps they have been taught.

Our Computing curriculum is high quality, well thought out and is planned to demonstrate progression and prepare children for their life ICT journey. In addition, we measure the impact of our curriculum through formative and summative assessments. Teacher, peer and self assessment at the end of every unit of work for computing is used. Teachers also use formative assessment to assess whether:

- Children can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation;
- Children can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems;
- Children can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems;
- Children are responsible, competent, confident and creative users of information and communication technology.