Stoke Prior First School Curriculum Offer for Computing

At Stoke Prior First School, we believe that a high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The planned curriculum includes a breadth of knowledge relating to computer science, information technology and digital literacy.

Computer science teaches pupils the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. The curriculum is rich in computer science knowledge, enabling pupils to make sense of the entire computing curriculum. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. The curriculum enables pupils to gain the knowledge 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.

Curriculum – Knowledge, Skills and Understanding

Foundation Stage

Practitioners use Computing to link to a variety of the children's Early Learning Goals. Computing is used to encourage children's interests to identify possible areas in which to challenge and extend the child's current learning and development.

- Children in the EYFS have access to a range of computer hardware (e.g. ipads, Beebots and interactive whiteboard) and software (e.g. Mini Mash, educational apps) to support them in their achievement of their ELGs.

Key Stage 1 (Years 1 and 2)

Pupils will be taught to:

understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
**** create and debug simple programs***
**** use logical reasoning to predict the behaviour of simple programs***
**** use technology purposefully to create, organise, store, manipulate and retrieve digital content***

Using the Purple Mash program, children are taught to explain that an algorithm is a set of instructions to complete a task. When designing simple programs, children show an awareness of the need to be precise with their algorithms so that they can be successfully converted into code.

Children are taught to create a simple program that achieves a specific purpose. They can show how to identify and correct some errors, e.g. debug challenges: chimp. Children's program designs display a growing awareness of the need for logical, programmable steps.

Children are taught to identify the parts of a program that respond to specific events and initiate specific actions. For example, they can write a cause and effect sentence of what will happen in a program.

recognise common uses of information technology beyond school

During Computing lessons and within other areas of school life, children learn that technology is all around us and identify uses of technology in school, at home, in the workplace and the wider world.

**** use technology safely and respectfully, keeping personal information private; identify where to go for help***
and support when they have concerns about content or contact on the internet or other online technologies.

Through specific online safety lessons, children are taught our school internet safety rules and how to use programs safely. These are revisited at the start of each academic year and throughout the year as necessary, in addition to a dedicated whole school E-Safety focused week. The curriculum carefully sequences knowledge related to E-safety to ensure that subject content is appropriate for KS1 pupils.

Children are, in addition, taught to open, switch on and log onto the school network using laptops and PCs. They experience finding and opening programs in order to use them fluently and effectively.

Key Stage 2 (Years 3 and 4)

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 programs; work with variables and various forms of input and output***
**** use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs***

Using Purple Mash coding, children are taught to turn simple real-life situations into more complex algorithms (instructions) for a program by deconstructing it into manageable parts. Their design shows that they are thinking of the desired task and how this translates into code. Children can identify an error within their program that prevents it following the desired algorithm and then fix it (debugging).

Children are taught to design and code a program that follows a simple sequence. They experiment with timers to achieve repetition effects in their programs. Children are beginning to understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects.

Children are taught to understand how variables can be used to store information while a program is executing. Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables. They are shown attempts to 'step through' more complex code in order to identify errors in algorithms and can correct this. e.g. traffic light algorithm in 2Code. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately.

**** 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***

Children are taught that the internet can be used to provide different methods of communication. They are taught to use some of these methods of communication, e.g. being able to open, respond to and attach files

to emails using 2Email. They are taught appropriate email conventions when communicating in this way.

**** use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content***

Children are taught the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level.

**** select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information***

Children are taught to collect, analyse, evaluate and present data and information using a selection of software, e.g. using a branching database, spreadsheet. Children are tasked to consider what software is most appropriate for a given task. They are challenged with creating purposeful content to attach to emails, e.g. 2Respond within Purple Mash.

**** use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.***

In addition to the KS1 coverage, pupils in KS2 discuss in more detail, the consequences of not following internet safety rules. We teach the age appropriate classification of online risk – the 4Cs:

engages with and/or is exposed to potentially harmful **CONTENT**; experiences and/or is targeted by potentially harmful **CONTACT**; witnesses, participates in and/or is a victim of potentially harmful **CONDUCT**; is party to and/or exploited by a potentially harmful **COMMERCE**.

As a school, we send out relevant information regarding online safety within our newsletter, when necessary. Through annual internet safety weeks and throughout the year, children are taught from a young age and at an appropriate level about understanding their digital footprint and that once something is posted to the internet it cannot be easily deleted. Pupils are taught that they have a responsibility to themselves and others and must ask permission before posting e.g. photos of other online.

Technology is used throughout other areas of the curriculum in order to enhance learners' experience and understanding of different subjects. Please refer to individual subject policies for further information.

Stoke Prior is committed to providing pupils with high-quality Computing education which equips pupils with the skills and knowledge which they will need for an ever-changing digital world.