

# Computing Overview



The computing scheme at Athersley South is sequenced to ensure a progression of knowledge and skills throughout the Primary years. It is based on a spiral curriculum, which means that themes are revisited regularly to consolidate and build upon prior learning over time. 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. Children can then use this knowledge to create content. Children are also taught to be digitally literate where they are able to use and express themselves safely through information and communication technology.

At Athersley South we have chosen to follow the Teach Computing Curriculum scheme of work as this provides a comprehensive collection of planning and materials to facilitate the delivery of the entire breadth of the National Curriculum. This curriculum was designed by experts who are always reviewing and updating resources, and who provide pedagogy and training for each area to ensure teachers have a deep understanding of each unit taught, where needed staff can edit these plans to suit the needs of their pupils. Computing is taught on a weekly basis and organised into blocks, usually around 6 weeks long, focusing on a key skill or objective from the National Curriculum where each lesson builds upon the previous one. The units taught are; Computing Systems and Networks, Creating Media, Data and Information and Programming. These are taught through a variety of unplugged activities as well as through physical computing. All curriculum objectives for a key stage will be taught throughout a two-year cycle, within these cycles there is a suggested teaching order but this can be flexible if a particular unit is better suited to being taught at a different time of the year. Where possible opportunities are taken to make meaningful connections between subjects. Some units such as the Data and Information Unit in KS1 and 2 are taught within science and maths lessons where there is overlap between the objectives. Online safety is taught at that start of each computing lesson as well as being woven into the PHSCE curriculum. Teachers will match the theme of this to their children's current needs, ensuring a breadth of topics are covered over the year.

## EYFS

The EYFS framework is structured very differently to the National Curriculum as it is organised across seven areas of learning rather than subject areas. We continuously use our understanding of child development and skill progression, baselines, observations and assessments to identify and review our pupil's strengths and gaps. This knowledge, along with the Educational Outcomes and Early Learning Goals within the Statutory Framework, drives our provision, learning environment and tailors our curriculum to the children's needs as well as ensuring we provide a broad range of knowledge and skills that are continuously built upon to provide the right foundations for the children in our care to become lifelong learners. All of this is provided through our continuous provision to engage children's curiosity, thinking and learning through play and adult focus tasks. Although technology is no longer a statutory part of the EYFS curriculum at Athersley South we still believe that it is important that pupils have the chance to explore different technologies and use these to aid their learning before they enter KS1. The teachers have used their knowledge to set computing objectives to be covered by the end of the key stage, these are designed to be progressive and lead on to the objectives in Key Stage 1.

Pupils will be exposed to a range of technologies and learn how they can be used in everyday life and to aid their own learning, these technologies will include digital cameras, voice recorders, iPads/tablets, interactive whiteboards and walkie talkies. Children will begin to gain basic mouse skills through using the desktop computers in the classroom. They will also use these along with iPads to discover how to navigate operating systems such as windows and apple. Children will begin to build on their programming skills through listening to and giving verbal instructions, using remote control devices and eventually coding

devices such as floor robots. Online safety will be continuously touched on throughout the EYFS through discussions and the use of stories. Playing with, using and exploring various technologies during the EYFS will mean pupils will go up to KS1 with a strong foundation of skills that they can then build upon in further years.

### **Key Stage 1**

During their time in Key Stage 1 pupils will learn to recognise technology around them both in and beyond school, they will identify how this improves our world and how to use it safely and respectfully as well as where to go for support when they have concerns about content or contacts on these systems. They will be able to use technology for a purpose to create, organise, store, manipulate and retrieve digital content including; capturing and changing digital photographs, creating musical compositions and creating and formatting text and art works. Children will learn to group and sort objects by their properties and collect data in a tally chart and present this on a computer. 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. They will create and debug simple programs for floor robots and use logical reasoning to make predictions.

### **Lower Key Stage 2**

During their time in Lower Key Stage 2 pupils will build on their understanding of technology by identifying digital devices' inputs, processes and outputs. They will understand that devices can be connected to make networks and understand that networks, including the internet, can provide multiple services and offer opportunities for communication and collaboration. They will understand why we should evaluate online content. They will use a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. This will include using stop-frame animation, photo editing, desktop publishing software and audio editing software. Pupils will reflect on the purpose and the impact of their changes on these and also be taught about copyright. Pupils will also build and use branching databases and use data loggers to carry out an investigation in science. Building on their programming knowledge and skills from Key Stage 1 pupils will use text and block based programming languages to make music, repeat shapes, trigger sequences and create loops.

### **Upper Key Stage 2**

During their time in Upper Key Stage 2 pupils will identify and explore how information can be shared between digital systems and use search technologies effectively, appreciating how results are selected and ranked, and being discerning in evaluating digital content. They will use technology safely, respectfully and responsibly, be able to recognise acceptable and unacceptable behaviour, and identify a range of ways to report concerns about content and contact. They will 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. This will include vector drawing, 3D modelling, video editing, creating webpages, using databases to create charts and using databases and spreadsheets to answer questions. They will continue to build on their programming skills by designing, writing and debugging programs that accomplish specific goals, including controlling or simulating physical systems such as Microbits and Crumbles. They will solve problems by decomposing them into smaller parts and use sequence, selection, and repetition in programs. They will be able to work with variables and various forms of input and output and use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

Throughout the Computing scheme, there is complete coverage of all national curriculum programmes of study.