

Bowlee Park Community Primary School

Computing Policy

Our School Motto; Knowledge... your passport to the world!

Bowlee Values - Respect, Kindness, Ambition, Resilience, Cooperation, Responsibility

British Values - Democracy, Rule of Law, Individual Liberty, Tolerance and Respect

Rights Respecting Schools - Article 28; 'Every child has the right to an education'

Bowlee Behaviour Principles – Be Ready, Be Respectful and Be Safe

1. CURRICULUM INTENT

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 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.

National Curriculum, 2014

A Curriculum for Our Pupils

We are a large school in an area of significant deprivation and many of our pupils come from homes where there are challenges of low income and social deprivation. Therefore, we ensure that the teaching of computing provides all children with opportunities to develop a wide range of fundamental skills, knowledge and understanding to equip them for life in a digital world. As computers and technology are integral to everyday life our children would be at a disadvantage if they were not exposed to a thorough and robust computing curriculum. Children must be taught 'computational thinking' in order master the essential knowledge and skills needed to participate effectively and safely in the digital world. Computing has deep links with mathematics, science and design and technology, and provides insights into both natural and artificial systems. Computing also ensures that pupils become digitally literate and develops their ideas through information and communication technology, at a level suitable for the future workplace and as active participants in a digital world. Computing provides a wealth of learning opportunities and transferrable skills.

Our computing curriculum enables children to become effective users of technology who can:

- understand and apply the essential principles and concepts of Computer Science, including logic, algorithms and data representation;
- analyse problems in computational term, and have repeated practical experience of writing computer programs in order to solve such problems;
- evaluate and apply information technology analytically to solve problems;
- communicate ideas well by utilising appliances and devices throughout all areas of the curriculum.

Our computing curriculum takes into account the wide range of abilities in the classroom and ensures that appropriate support and resources are in place to ensure all children can access the lesson objectives and excel at an age appropriate level.

A curriculum of Breadth and Wider Opportunity

At Bowlee Park, we deliver a curriculum of breadth and ambition. Our computing curriculum delivers the EYFS Framework and statutory National Curriculum through the Kapow scheme of work. We ensure that Kapow meets the individual needs of our pupils and narrows gaps in their knowledge and skills. Links with other schools in our community ensures that our 'digital leaders' programme promotes confident, effective and safety-conscious communication skills through a planned and well-resourced series of inter-schools' events.

Progressive, Well-sequenced Learning that Embeds Knowledge

Our Computing curriculum is based on developing the six elements of computing: digital literacy; computers and hardware; online safety; cross curricular application; computational thinking and coding. Computing lessons are planned systematically so that there is a carefully sequenced journey through knowledge and skills. This is achieved through small progressive steps, enabling children to know more and remember more. Our Computing curriculum maximises the opportunities for pupils to build on prior learning. Knowledge content is repeated and revisited to ensure that pupils know more and remember more. As a result, as pupils move through school they make connections to skills previously taught, which leads to further learning and develops new skills. As pupils develop knowledge, they need to practice and master skills; learning is recapped and reinforced. There are clear cross-curricular links throughout the Kapow scheme to other academic subjects, such as maths and science.

A Curriculum where Reading is a Priority

Reading has the highest priority at Bowlee Park. Our computing curriculum provides children with opportunities to apply their reading skills through research of the internet and application of digital programs. The ability to read enables full access to the opportunities computer networks offer for communication and collaboration. The challenges of discerning and evaluating digital content rely upon the reading ability of the pupil. Sequencing, analysis and evaluation are key skills in computing, which support and practise reading and comprehension objectives.

A Curriculum that Develops Core Values

Our computing curriculum enables our pupils to develop into confident learners who are able to communicate and express their feelings and ideas freely, which reinforces our UNICEF Rights Respecting Schools' Programme (Freedom of Expression- Article 13). At Bowlee Park, computing empowers pupils to embed the Bowlee values of responsibility and cooperation as pupils are required to work and communicate with others, and to keep themselves and others safe. Computing teaches children to think rationally and logically and so develops their ability to make sense of their thoughts and communications and to cooperate rationally with others.

Objectives in the Teaching of Computing

- 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
- recognise common uses of information technology beyond school
- 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
- 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
- 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
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- 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
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Computing Curriculum Planning

The National Curriculum Programme of Study for computing describes what pupils learn in each key stage. We use the National Curriculum for as the basis of our computing programme of study, supported by the Kapow computing scheme of work. Planning identifies the following elements and ensure they are logically and progressively taught:

- computer science (algorithms and programming, data and systems)
- information technology (digital artefacts and computing contexts)
- digital literacy (mechanics, searching and selecting information and E-safety)

The curriculum is organised into clear units of study from EYFS to Y6 and this is recorded in a long term plan. Units are logically sequenced to enable children to build knowledge and skills to know more and remember more. There are medium term plans for each unit. These set out the progression within the unit and there are clear links to prior learning and preparing children for the next steps. Short term planning is recorded each week. These plans outline the topic area/focus with specific learning objectives to be taught along with the teaching approach and resources to be used to support learning.

Internet Safety

Internet access is planned to enrich and extend learning activities across the curriculum. However, we have acknowledged the need to ensure that all pupils are responsible and safe users of the Internet and other communication technologies both in school and outside. Rules for responsible Internet use are displayed in each classroom within our school. To further ensure the safety of the children we teach each class the rights and responsibilities of using the Internet.

The Early Years Foundation Stage

In Early Years our children are introduced to the understanding of internet safety as they explore the world around them and learn how technology is an everyday part of their understanding of the world. They explore technology through play and build an understanding of simple devices, e.g. iPads and simple electronic games. This exposes children to some computational thinking language, such as; first, next, after that. Following simple games in Early Years is a precursor to understanding what an algorithm is.

The Contribution of Computing across the Curriculum

At Bowlee Park we believe computing enhances our teaching and learning and we use computing throughout the curriculum. Through using technology across the curriculum, children understand the benefits of becoming computer literate for the future. Children have access to a wide range of technology to support learning in all year groups. Teachers are trained in using computing in a range

of other subjects.

Ambition and access to the Computing Curriculum

At Bowlee Park Primary School all children have an entitlement to a broad and balanced curriculum. In designing our curriculum, we have ensured that the programme of study is well sequenced and delivered in small steps. In lessons, content is repeated and revisited to enable children to retrieve prior learning and develop fluency. We regularly plan opportunities for spaced practise to ensure knowledge is retained and children make progress.

The majority of children access age appropriate objectives through adaptive teaching. For all pupils (including those with SEND), teaching is adapted through a range of strategies including: breaking down learning into smaller chunks; adult support; reframing of questions; use of concrete and visual resources. Pupils are challenged through demanding problems, which deepen their knowledge of the same content before acceleration onto new content.

In computing, staff make appropriate curricular provision to respond to children's needs by:

- planning for all children's full participation in learning;
- differentiating teaching and learning to recognise individual needs;
- providing support for children who require it to access the curriculum;
- taking into account the specific needs of pupils with SEND and the targets set for them as identified in their Pupil Profile, Individual Education Plans or Education, Health and Care Plans;
- using resources effectively to support all learners, including those with SEND;
- seeking advice from the subject leader and the SENDCOs to meet the needs of all pupils.
- where appropriate computing can be used to support SEN children on a one to one basis, where children receive additional support;
- using adapted resources where appropriate such as visual timetables, different coloured backgrounds and screen printouts;
- providing adaptive technology such as roller ball mice and large format keyboards
- providing Clicker - including spell checker, word banks, use of pictures and symbols, prediction, speech output, switch access for disabled pupils;
- enabling large fonts and screen magnifiers on computers, laptops and Chromebooks

Staff at Bowlee Park take into account that pupils have different educational and behavioural needs and aspirations; require different strategies for learning; acquire, assimilate and communicate information at different rates; and need a range of different teaching approaches and experiences. Therefore, when needed the curriculum is differentiated to enable our children to:

- understand the relevance and purpose of all learning activities;
- experience levels of understanding and rates of progress that bring feelings of success and achievement;
- maximise achievement for all pupils, including pupils with Special Educational Needs and Disabilities (SEND) and children whose first language is not English, by addressing barriers to learning.

Equality for All

At Bowlee Park Primary School we are committed to promoting equality of opportunity, eliminating discrimination and harassment, valuing diversity and promoting positive relationships. We meet the requirements of the Equality Act 2010 and provide an inclusive education to enable all pupils to develop their full potential.

Our school delivers a broad and balanced curriculum for all pupils and we address individual needs irrespective of gender, ability, religion or ethnic origin. The curriculum avoids stereotypes and provides good role models for all pupils. We ensure the curriculum is not delivered in a discriminatory way.

2. IMPLEMENTATION

Computing Teaching and Learning

Children are taught through whole-class interactive teaching, where the focus is on all children working together on the same lesson content, whilst at the same time challenging and supporting pupils to gain depth of understanding.

Teachers use a range of teaching strategies and ensure progress is made by all children within a class; no set formula is used. Typical features include:

- lessons designed to build concepts in small progressive steps;
- lessons that encourage thinking, use precise language and allow children to deepen their understanding of the concept;
- a balance of interactive whole-class teaching, guided group/paired work and individual pupil work, including intelligent practice and reflection;
- clarity of information communicated with graphical representations leading to abstract understanding;
- the idea that the majority of children will be working at the age related expectation – keep up not catch up;
- staff regularly checking understanding to ensure that every child is keeping up and follow the cycle of assess, plan, do and review;
- differentiation mainly through questioning, support and outcome - the focus of the lesson may vary for a small number of children depending on their learning needs;
- as part of the sequence of learning there will be lessons where the focus lesson will be new learning and at other times pupils may be practising to master the concept they have learned earlier;

Resources

The school is well resourced to deliver the computing curriculum. Children in Foundation stage have access to iPads in each classroom. Key Stage 1 children each have access to iPads in the classroom at a ratio for 1:2. Children in Key Stage 2 have access to Chromebooks at a ratio of 1:1. We also have interactive screens in every classroom and a fully immersive 4D 'Digital Den'. SEND children have access to adapted equipment, such as colour coded keyboards and large font laptops. Children access a computer suite with 30 Windows PC's every week to access discrete computing lessons.

3. IMPACT

Assessment in Computing

Teachers assess children's work in computing using formative and summative assessment methods.

Teachers integrate the use of formative assessment strategies such as effective questioning, clear learning objectives and effective feedback and response in their teaching. There is a high emphasis on feedback at the point of learning so that any misconceptions can be identified quickly and acted upon by adults. There are ongoing pre and post unit checks and assessments to assess understanding and to assess retention of knowledge and skills.

Summative assessments are undertaken termly against age-related national curriculum objectives by subject specialist teaching staff and data is collated and analysed.

We assess the impact of our curriculum through the following criteria:

- A reflection on standards achieved against the planned outcomes
- How children understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation;

- How children can analyse problems in computational terms, and have repeated experience of writing computer programs in order to solve such problems;
- How children can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems;
- How responsible, competent, confident and creative children are as users of information and communication technology.

Monitoring and Review

The quality of teaching and learning in computing is monitored and evaluated by the headteacher, senior leaders and the computing team as part of the school's agreed cycle of monitoring. This cycle includes:

- planning scrutiny
- work scrutiny
- lesson observations
- interviews with teachers
- discussion with pupils
- assessment data analysis
- action planning to develop computing curriculum development and teaching and learning based on the outcomes of monitoring.

The Role of the Subject Leader/Computing Team

- Ensures teachers understand the requirements of the National Curriculum and teaching and learning is in line with this document.
- Prepares a subject action plan and meets regularly with the headteacher and the computing governor regarding the actions and their impact.
- Monitors and evaluates mathematics provision in the school by conducting regular planning scrutiny, work scrutiny, lesson observations, interviews with teachers, discussion with pupils and assessment data analysis.
- Organises and leads CPD and joint professional development.
- Observes colleagues with a view to identifying the support they need.
- Attends appropriate CPD.
- Keeps parents informed about computing issues.

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Next Review: September 26