# Computing Curriculum Overview

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 the knowledge and understanding, pupil are equipped to use information technology to create programs, systems and a range of content. Computing also ensure 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.

***"Whether you want to uncover the secrets of the universe, or you want to pursue a career in the 21st century, basic computer programming is an essential skill to learn"***

***Stephen Hawking***

**Our curriculum intent**

Our computing curriculum will enable pupils 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
- 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.

Our curriculum approach - Knowing and remembering more.

At Bradley Green, 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.

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Our ambitious computing curriculum is now structured in 3 areas that allow all pupils from EY to year 6 to progress through different categories of knowledge. These are:

- Digital literacy
- Information technology
- Computer science

Each area of the curriculum gives pupils time to practice and rehearse the knowledge needed to be proficient at computing and be ready for the next age of learning.

**Lesson structure**

Each lesson begins with some retrieval of key knowledge and vocabulary from previous lessons and units from the current and previous year groups. We believe that it is vital that children know and remember more. *"Building our long-term memory and our level of fluency in recall. More fluent recall allows more space in working memory to attend to applying the knowledge to explain deeper questions."*

The learning intentions will be shared with the children. *"If we don't know where we are going, we'll never arrive!"*

Before the new learning takes place, staff will activate some prior knowledge, which links to the new learning of the lesson, through a retrieval type task or a discussion. *"Prior learning needs to be active in our working memory if we're going to add layers of complexity to it. New information is only stored if we link it to the knowledge we already have."*

The main part of the lesson may contain an 'I do', 'we do' or 'you do' element depending on the content and where they are up to in the unit. This is where the teacher will model, children will work together and/or with the teacher so that they are supported and then children will complete a task independently.

Throughout the lesson, staff will use a range of questions to assess the children's understanding and guide the lesson appropriately, tailoring the lesson for individuals if required.

At the end of the lesson, staff will ask carefully targeted questions to assess children's understanding. These questions are open questions that relate to understanding rather than just remembering. This assessment is then used to decide a starting point for the next lesson in the sequence.

Any assessments made during the lesson regarding children's understanding as individuals or as a whole are noted on the bottom of the unit plan.

**SEND**

Our classrooms are inclusive classrooms. They are places where learning opportunities are tailored to meet the needs of all children; in lessons where adults have thought about the ways in which learning is purposeful, meaningful and relevant to the current needs of every child. These are classrooms where lessons are pitched so that every child experiences success and makes progress in their learning.

## Computing in EYFS

Children have opportunities to use technology such as iPad to access educational apps like Numbots and White Rose 1 minute maths. Children are exposed to BeeBots when working on directional and positional language.

Children are exposed to the internet through whole class and group work and are involved in conversations around e-safety.

## Assessment

Teachers assess throughout as well as at the end of each lesson and record this assessment on their unit plans. Teachers identify children who have exceeded the expectation or who need more practice and use this to decide the starting point for the next lesson.

The assessment information is also passed on to the subject leader at the end of a unit so that the subject leader can look for patterns across this school. The teacher's feedback on the teaching of the unit is important for the subject leader when they come to revise the unit plans for the following year.

A summative judgement is also completed at the end of each term.

## Personal development

Through our Computing curriculum, we have a determination to develop learners to have a well-rounded set of British Values that enable them to keep themselves safe and prepares them for life in the modern world. We have a cast iron conviction to develop the behaviours that children need to succeed in the world ensuring they are ready, respectful, and safe online. Our lessons are carefully planned to allow all children to develop the 10 life skills we work on at Bradley Green: Managing distractions, noticing, perseverance, questioning, planning, reasoning, collaboration, listening, empathy, and organisation.



**Developing expertise**

The subject leader keeps up to date with the latest information and research by being part of work group within in the trust.

Unit plans have been created by the subject leader to support the teachers in delivering high quality lessons.