Computing at
Exwick Heights Primary School

Overview

Technology places a significant and important role in our society today. Therefore, our Computing curriculum is designed to teach the skills and the morals needed to participate effectively and safely in our digital world. We aim to provide a high-quality computing education which equips children to use computational thinking and creativity to understand and change the world. The curriculum will teach children key knowledge about how computers and computer systems work, and how they are designed and programmed.

In particular, Internet Safety is at the heart of our computing curriculum, as we revisit this subject at the start of each new half term. Children are well-equipped to understand their role in using the Internet safely and know how to report any concerns they have when using technology.

Curriculum Principles

By the end of their primary education, a pupil of Exwick Heights Primary School will:
- understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation.
- analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems.
- evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems.
- be responsible, competent, confident and creative users of information and communication technology.

By the end of Early Years, pupils can…
- Whilst computing no longer features in the Early Year's framework and it is not directly taught at Exwick Heights Primary, opportunities are made wherever possible to use technology to encourage listening and communication, problem solving and thoughtful questioning with the aspiration that this impacts positively across all seven areas of learning.
- Their interaction with technology (examples in the curriculum overview section) will give them the experience and vocabulary to ensure they can engage with the National Curriculum once in Year 1.

By the end of KS1, pupils can…
- 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.
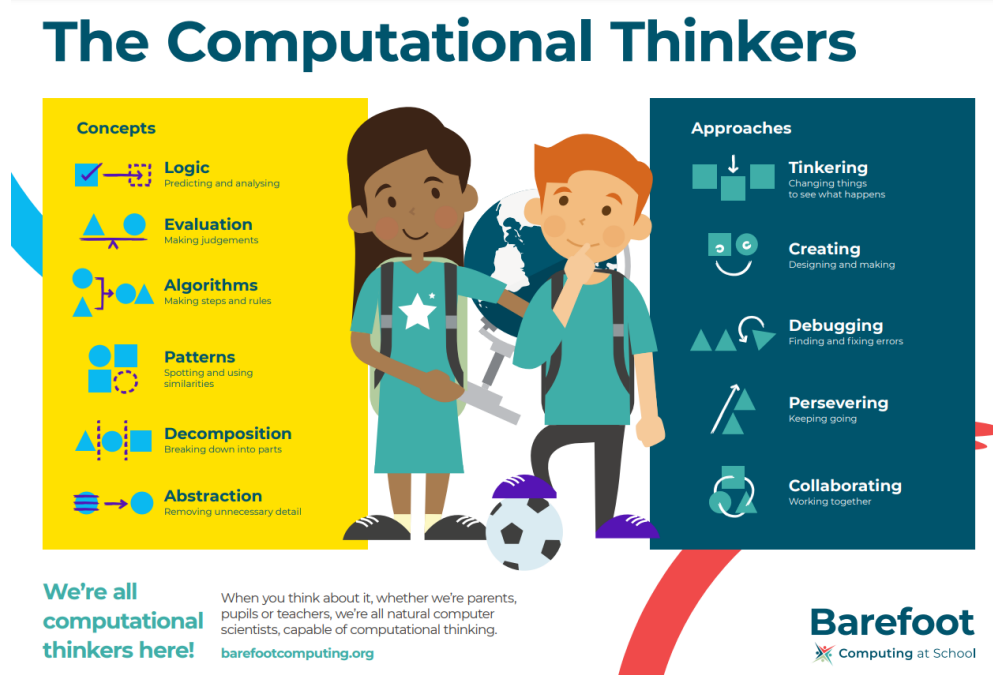- recognise common uses of information technology beyond school.

- 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.
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By the end of KS2, pupils can...
- 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.

Pupils will also develop the following computational thinking skills:

In order to achieve a true understanding of Computing, topics are sequenced based on the following rationale:

- The units for key stages 1 and 2 are based on a spiral curriculum. This means that each of the themes is revisited regularly (at least once in each year group), and pupils revisit each theme through a new unit that consolidates and builds on prior learning within that theme. This style of curriculum design reduces the amount of knowledge lost through forgetting, as topics are revisited yearly with explicit links made and opportunities to review learning is clearly defined. It ensures that connections are made when different teachers are teaching the units within a theme in consecutive years.
- Topics are sequenced to build on prior knowledge and skills to build/deepen previous learning.
- Access to a knowledge-rich, intelligently-sequenced collection of planning and resources.
- Balanced coverage of Computer Science, Information Technology and Digital Literacy. Children will experience all three strands in year group; however, the subject knowledge imparted becomes increasingly specific and in depth, with more complex skills taught, thus ensuring that learning is built upon.
- Curriculum design from the Teach Computing Curriculum is as follows:
    - Algorithms — Be able to comprehend, design, create, and evaluate algorithms
    - Computer networks — Understand how networks can be used to retrieve and share information, and how they come with associated risks
    - Computer systems — Understand what a computer is, and how its constituent parts function together as a whole
    - Creating media — Select and create a range of media including text, images, sounds, and video
    - Data and information — Understand how data is stored, organised, and used to represent real-world artefacts and scenarios
    - Design and development — Understand the activities involved in planning, creating, and evaluating computing artefacts
    - Effective use of tools — Use software tools to support computing work
    - Impact of technology — Understand how individuals, systems, and society as a whole interact with computer systems
    - Programming — Create software to allow computers to solve problems
    - Safety and security — Understand risks when using technology, how to protect individuals and systems
    - The taxonomy provides categories and an organised view of content to encapsulate the discipline of computing. Whilst all strands are present at all phases, they are not always taught explicitly.

The Computing curriculum will address social disadvantage by addressing gaps in pupils' knowledge and skills:

- At Exwick, we provide relevant CPD to ensure that all staff are able to give the pupils the best quality first teaching.
- Staff have access to Teach Computing CPD online.
- Pupils with special educational needs or disabilities are given extra support and consideration. For Pupils who are new to English, or have profound barriers to learning, are taught a

differentiated curriculum with additional scaffolds. This provides them with the essential powerful knowledge needed to take part in the curriculum proper with their peers.

- Disadvantaged pupils and those from identified underrepresented groups receive priority for extra support so that every opportunity to close the advantage gap is capitalised on. In practice, this could be working with an additional TA where possible, additional targeted questioning and scaffolds to expose only the new learning as the focus.
- Pupils in receipt of the Pupil Premium and or SEN or another special characteristic are highlighted in the half termly assessment grids to ensure their progress is thoroughly tracked and monitored.

We fully believe Computing can contribute to the personal development of pupils at Exwick Heights:

- Children will learn how to develop their social competence, learn how to work with others and articulate ideas to justify their opinions. The computational thinking model encourages creativity, collaboration, exploration and perseverance.
- Develop an understanding of how technology has an impact on their lives.
- Computing lessons provide opportunities to explore personal development relating to Online Safety concepts such as living as a good digital citizen. Online safety concepts are also covered in our PSHE curriculum and through assemblies.

In each phase of learning, our belief is that homework should be a revision of powerful knowledge previously modelled and taught in lessons. This knowledge is recalled and applied through a range of quizzing and practice.

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Curriculum Overview with Enrichment Opportunities

Year	Term 1	Term 2	Term 3
Nursery			
Reception	Rather than being taught discreetly, the EYFS incorporate technology into the children's daily lives as it will be within their childhoods as they develop and into their adult working lives. For us at EHPS, technology in the EY means taking a photograph with a camera or a tablet, searching for information on the internet, playing games on the interactive whiteboard, exploring mechanical toys, using a Beebot, watching a video clip – including of themselves and listening to music. Computational thinking is taught through un-plugged questioning- Barefoot principles.		
Year 1	We are Year 1 rule writers Simple computer skills NCCE – Computing systems and networks-Technology around us	We are kind and thoughtful NCCE - Programming A - Moving a Robot	We are responsible internet and device users NCCE-Creating media- Digital writing
Year 2	We are Year 2 rule writers NCCE – Computing systems and networks: IT around us	We are safe searchers NCCE- Creating media- Digital Music	We are not online bullies NCCE- Programming B- Robot algorithms
Year 3	We are Year 3 rule writers NCCE-Computing systems and networks- Connecting computers	We are digital friends NCCE- Programming B-Events and actions in programs	We are internet detectives NCCE – Creating media: Stop- frame animation
Year 4	We are Year 4 rule writers NCCE – Computing Systems and Networks: The Internet	We are standing up to peer pressure NCCE – Data and information- Branching databases	We are aware that our online content lasts forever NCCE- Programming B- Repetition in games
Year 5	We are Year 5 rule writers NCCE – Computing Systems and Networks: Systems and searching	We are responsible for our online actions NCCE-Creating media- Web page creation	We are content evaluators NCCE – Programming B- Selection in quizzes
Year 6	We are online safety ambassadors NCCE- Data and information- Introduction to Spreadsheets.	We will not share inappropriate images NCCE - Programming B - Sensing (Microbits)	We are safe social networkers NCCE-Programming A- Variables in games

Reach For The Heights