Computing Curriculum Overview

Bingham Primary School Computing Curriculum

Research

Computing education in primary schools is crucial as it has been shown to foster cognitive development, enhance problem-solving skills, and prepare students for future career opportunities in the technology-driven world. Research has demonstrated that early exposure to computing concepts not only improves cognitive abilities (Papastergiou, 2009) but also develops computational thinking skills (Wing, 2006), sparking interest in STEM fields (Google & Gallup, 2017), and promoting creativity and collaboration (Kafai & Resnick, 1996). Furthermore, computing education equips students with skills essential for global competitiveness (Voogt et al., 2015), ensuring that they are well-prepared for the demands of the 21st century job market.

Computing Curriculum Pedagogy

Bingham Primary school believes that every child should have the right to a curriculum that champions excellence; supporting pupils in achieving to the very best of their abilities. We understand the immense value technology plays not only in supporting the Computing and whole school curriculum but overall in the day-to-day life of our school. We believe that technology can provide: enhanced collaborative learning opportunities; better engagement of pupils; easier access to rich content; support conceptual understanding of new concepts and can support the needs of all our pupils.

National Curriculum:

Purpose of study

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

Aims

The national curriculum for computing aims to ensure that all pupils:

- Can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- Can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- Can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- Are responsible, competent, confident and creative users of information and communication technology

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

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Key stage 1

Pupils should be taught:

Pupils should 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
- 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.

Key stage 2

Pupils should 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
- 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

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Curriculum Coverage Grid

Digital Literacy Information technology Computer Science	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	1.1 Online Safety (4)	1.2 Grouping and sorting (2) 1.3 Pictograms (3)	1.4 Lego builders (3) 1.5 Maze Explorers (3)	1.6 Animated story books (5)	1.7 Coding (6)	1.9 Technology outside school (2)
Year 2	2.2 Online Safety (3)	2.1 Coding Crash Course (6)	2.4 Questioning (5)	2.5 Effective searching (3) 2.7 Making music (3)	2.6 Creating Pictures (5)	2.8 Presenting ideas (4)
LKS2 Year A	3.2 Online Safety (3)	4.1 Coding (6)	4.4 Writing for different audiences (5)	4.5 Logo (4) 4.8 Hardware (2)	4.6 Animation (3) 4.7 Effective searching (3)	4.9 Making music (4)
LKS2 Year B	4.2 Online Safety (4)	3.1 Coding Crash course Year 3 (7)	3.4 Touch Typing (4)	3.5 Email (6)	3.6 Branching Databases (4) 3.8 Graphing (2)	3.7 Simulations (3)
UKS2 Year A	5.2 Online Safety (3)	6.1 Coding (6)	6.3 Spreadsheets crash course (5)	6.4 Blogging (4) 6.5 Text adventures (2 of 5)	6.5 Text adventures cont. (3 of 5) 6.6 Networks (3)	6.7 Quizzing (6)
UKS2 Year B	6.2 Online Safety (2)	5.1 Coding Crash course (6)	5.3 Spreadsheet crash course (6)	5.4 Databases (4) 5.5 Game creator (2 of 5)	5.5 Game creator cont. (3 of 5) 5.6 3D Modelling (3 of 4)	5.6 3D Modelling cont. (1 of 4) 5.7 Concept maps (4)