Computing Curriculum Overview

Rationale

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. At Birch Copse, we use the Purple Mash Computing scheme as the foundation for our curriculum. It is closely aligned to the National Curriculum and allows all children to be able to progress well from different starting points and achieve high standards in computing. The scheme exposes children to variety of skills, experiences and real-life scenarios that supports the notion of Cultural Capital. We compliment Purple Mash with Scratch and Excel in Year 6 to expose the children to real life programs they will need in the next stage of their learning at secondary school and beyond (these units are in red text below).

Structure

Computing is taught every week at Birch Copse. This amounts to approximately 30 computing lessons each year. We use the Purple Mash Computing scheme of work as the basis for our curriculum, adapting lessons to suit our needs.

Content

The scheme is broken down into seven to nine units per year group. They cover the three strands of the National Curriculum:

	Strand	Description
1	Computer Science	Computer science helps children of all ages to understand how computers and networks work. It gives all children the opportunity to learn basic computer programming, from simple floor robots in Years 1 and 2, right up to creating on-screen computer games and programmes by Year 6
2	Information Technology	Information technology is about the use of computers for functional purposes, such as collecting and presenting information, or using search technology.
3	Digital Literacy	Digital literacy is about the safe and responsible use of technology, including recognising its advantages for collaboration or communication.

Themes

Each unit covers a different skill around computing. These have been placed under broad theme headings

Coding and Computational Thinking	
Spreadsheets	**Databases and Graphing**
Internet and Email	**Writing and Presentation**
Art and Design	**Communication and Networks**

Coverage

The scheme covers the full requirements of the National Curriculum and to help show this, the school has assigned a code to each of the National Curriculum objectives to easily reference which ones are covered in each unit of work.

KS1	
Code	**Objective**
NC1a	Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
NC1b	Create and debug simple programs
NC1c	Use logical reasoning to predict the behaviour of simple programs
NC1d	Use technology purposefully to create, organise, store, manipulate and retrieve digital content
NC1e	Recognise common uses of information technology beyond school
NC1f	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.

KS2	
Code	**Objective**
NC2a	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
NC2b	Use sequence, selection, and repetition in programs; work with variables and various forms of input and output
NC2c	Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
NC2d	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
NC2e	Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
NC2f	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
NC2g	Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Year 1												
Term	Unit			Strand	Theme(s)	NC Reference						
	No.	Name	Number of Lessons			NC1a	NC1b	NC1c	NC1d	NC1e	NC1f
Autumn	1.1	Introduction to Purple Mash	3	Information Technology	Coding and Computational Thinking				x		x
	1.2	Creative Computing	4	Information Technology	Art and Design				x		
Autumn/Spring	1.3	Data Explorers	6	Information Technology	Databases and Graphing				x		
Spring	1.4	Creating and Following Instructions	3	Computer Science	Coding and Computational Thinking	x					
Spring/Summer	1.6	Coding	6	Computer Science	Coding and Computational Thinking	x	x	x			
Summer	1.7	Technology Around Us	4	Digital Literacy	Communication and Networks					x	x

Note: Digital literacy to be taught through Online safety taught throughout year.

NC1f – taught throughout 2BeSafe online safety lessons throughout the year

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Year 2												
Term	Unit			Strand	Theme(s)	NC Reference					
	No.	Name	Number of Lessons			NC1a	NC1b	NC1c	NC1d	NC1e	NC1f
Autumn	2.1	Route Explorers	4	Computer Science	Coding and Computational Thinking	x	x	x			
	2.2	The Internet	4	Information Technology	Internet and Email				x	x	
Spring	2.3	Creating Pictures	5	Information Technology	Art and Design				x		
Spring	2.4	Spreadsheets	6	Information Technology	Spreadsheets	x	x	x			
Summer	2.5	Questioning	4	Information Technology	Databases and Graphing Writing and Presentation Communication and Networks				x		
	2.6	Coding	6	Computer Science	Coding and Computational Thinking	x	x	x			

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Year 3													
Term	Unit			Strand	Theme(s)	NC Reference							
	No.	Name	Number of Lessons			NC2a	NC2b	NC2c	NC2d	NC2e	NC2f	NC2g
Autumn	3.7	Touch Typing	4	Information Technology	Writing and Presentation Communication and Networks						x	
	3.2	Route Planners	5	Computer Science	Coding and Computational Thinking	x	x	x				
Spring	3.5	Coding	6	Computer Science	Coding and Computational Thinking	x	x	x				
Spring/Summer	3.1	Email	6	Digital Literacy	Communication and Networks				x			x
Summer	3.6	Presentations (Google Slides)	5	Information Technology	Writing and Presentation						X	

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NC2e and NC2g – taught throughout 2BeSafe online safety lessons throughout the year

KS2	
Code	**Objective**
NC2a	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
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NC2e	Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
NC2f	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
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Year 4													
Term	Unit			Strand	Theme(s)	NC Reference							
	No.	Name	Number of Lessons			NC2a	NC2b	NC2c	NC2d	NC2e	NC2f	NC2g
Autumn	4.1	Unpacking Hardware and Software	4	Information Technology	Coding and Computational Thinking						x	
Autumn/Spring	4.2	Animation	6/8	Information Technology	Art and Design						x	
Spring	4.3	Logo	4	Computer Science	Coding and Computational Thinking	x	x	x				
	4.5	Effective Searching	4	Digital Literacy	Internet and Email				x	x		x
Summer	4.6	Coding	6	Computer Science	Coding and Computational Thinking	x	x	x				
	4.8	Introduction to AI	4	Information Technology	Internet and Email					x	x	
Optional		Micro:bits	4	Computer Science	Coding and Computational Thinking	x	x	x				

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Year 5													
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	No.	Name	Number of Lessons			NC2a	NC2b	NC2c	NC2d	NC2e	NC2f	NC2g
Autumn	5.1	Quizzing	5	Information Technology	Databases and Graphing						x	
	5.3	Game Creator	5	Information Technology	Coding and Computational Thinking						x	
Spring	5.4	Spreadsheets	6	Information Technology	Spreadsheets						x	
Spring/Summer	5.6	Word Processing (Google docs)	6	Information Technology	Writing and Presentation						x	
Summer	5.5	Coding	6	Computer Science	Coding and Computational Thinking	x	x	x				

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Year 6													
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	No.	Name	Number of Lessons			NC2a	NC2b	NC2c	NC2d	NC2e	NC2f	NC2g
Autumn	6.1	Networks	4	Computer Science	Communication and Networks				x	x		
	6.2	Graphing	4	Information Technology	Databases and Graphing						x	
Autumn/Spring	6.4	Data detectives	4	Information Technology	Databases and Graphing						x	
Spring	6.5	Coding (Scratch)	6	Computer Science	Coding and Computational Thinking	x	x	x				
	6.6	Introduction to Python	4	Computer Science	Coding and Computational Thinking	x	x	x				
Summer	6.7	Spreadsheets (Excel)	6	Information Technology	Spreadsheets						x	
	opt	Binary	4	Computer Science	Coding and Computational Thinking	x	x	x				

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