

## Our vision for **Computing** at Birley Spa Primary Academy

### **Intent**

Computing at Birley Spa Primary Academy intends to develop 'thinkers of the future' through a modern, ambitious and relevant education in computing.

*"To argue against the importance of ICT in the primary curriculum is to ignore the increasing digitisation of information worldwide." – Sir Jim Rose (President of the NFER and CfBT Education Trust)*

Our society is constantly changing and the majority of work within the world is becoming increasingly computer based. Our Computing curriculum arms our pupils with the technology-based skills they need to succeed throughout their education and in their later life. We endeavour to make technology an integral part of classwork across a breadth of subjects and not as an 'add-on subject', which bears no relation to the rest of his or her learning. By the time they leave Birley Spa Primary Academy, children will have gained key knowledge and skills in the three main areas of the computing curriculum: computer science (programming and understanding how digital systems work), information technology (using computer systems to store, retrieve and send information) and digital literacy (evaluating digital content and using technology safely and respectfully). The objectives within each strand support the development of learning across the key stages, ensuring a solid grounding for future learning and beyond.

### **Implementation (including pedagogy)**

Key Stage 1 and Key Stage 2 - Pedagogy

KS1 and KS2 - Pedagogy

At Birley Spa Primary Academy, computing is taught weekly in hour-long sessions. Teachers use the Computing scheme of work, published by Sheffield eLearning Service as a starting point to develop children's understanding of the different strands of computing. This ensures children are able to develop depth in their knowledge and skills over the duration of each of their computing topics. Progression of knowledge and skills are mapped across each scheme of work topic per year group to ensure systematic progression from EYFS through to Year 6.

Teachers use the scheme of work as a basis to plan high quality lessons that engage pupils and allow them to learn, practise and apply new knowledge and skills.

## Lesson Structure

Computing lessons are taught using the following structure:

1. Learning Objective and Success Criteria: The learning objective and success criteria are shared with pupils. Success criteria should be specific and show levels of differentiation.

eg:

LO: Understand what an algorithm is and why it is used.

I know that computers use algorithms. (WTS)

Year	Strand 0 Key Skills	Strand 1 Communicating: Text and Images	Strand 2 Communicating: Multimedia	Strand 3 Understanding & Sharing Data	Strand 4 Programming A	Strand 5 Programming B
1	What is a Computer?; Mouse & Keyboard Skills; Logging on; Opening & saving work; Organising files; Searching for information	1.1 How do I use the school computer independently?	2.1 How do I record sounds and pictures?	3.1 How do I present data using pictures?	Algorithms; Programs; Sequence	
					4.1 What is an algorithm?	5.1 What is a program?
2		1.2 How do I use a computer as a writer?	2.2 How do I create a multimedia story?	3.2 What is a branching database?	Algorithms; Programs; Debugging	
					4.2 How do I improve my algorithms?	5.2 How do I improve my programs?
3		1.3 What makes a good poster?	2.3 How do I use a computer as a musician?	3.3 How do we use databases to find out information?	Sequence; Repetition; Input	
					4.3 How do I use repetition in programs?	5.3 How do I use forever loops in programs?
4	1.4 How do I use a computer as an artist?	2.4 What makes an excellent multimedia story?	3.4 How is data shared online?	Decomposition, Selection		
				4.4 How do I write efficient programs?	5.4 How do I use selection in a program?	
5	1.5 How do we collaborate online?	2.5 How do I create a radio advert?	3.5 How do I find and share data safely and responsibly?	Inputs and Outputs; Variables		
				4.5 How do I program physical systems?	5.5 How do I use variables in programs?	
6	1.6 How do I use a computer to present information effectively	2.6 What makes an excellent film?	3.6 Why do we use spreadsheets?	Variables; Operators		
				4.6 How do I build complex physical systems?	5.6 How do I design complex programs?	

I can understand what an algorithm is. (EXS)

I can explain what an algorithm is and how they are used (GDS)

2. Anchor Task (5 minutes): A short, introductory open-ended or 'low threshold, high ceiling' task which provides opportunity for children to discuss their thoughts and ideas in pairs or groups.
3. New Learning (10 -15 minutes): High quality teacher input where children are guided through the acquisition of new skills and/or knowledge. Children are provided with interactive and engaging tasks that may not always be technology/computer based.
4. Practise (5 – 10 minutes): Children are given a chance to practise their newly acquired skills and/or knowledge either independently or with peers. This practise may be supported by the teacher, i.e: through scaffolding.
5. Apply (~30 minutes): Children are now given an opportunity to independently apply the new skills/knowledge they have acquired.

Across the year, each year group (Y1 through to Y6) teach the following topics as dictated by the Sheffield E-Learning Computing scheme of work:

Strand 0 (Key Skills) should underpin the teaching of Computing across the year and does not need to be taught as a standalone unit – this could be in the form of quick, short burst activities or teacher input that teaches or recaps a key skill that will be necessary for that lesson/unit. However, the weighting of units in each year may vary. I.e: in key stage 1, teachers may wish/need to concentrate on key skills, strand 1 and strand 2 to ensure pupils are confident users of technology. In upper key stage 2, more time may be spent on Strands 3, 4 and 5 as long as pupils can confidently and independently demonstrate their use of technology within Strands 0, 1 and 2.

The scheme of work is organised into six strands:

<b>Strand 0</b>	Key Skills: What is a Computer?
<b>Strand 1</b>	Communicating: Text & Images
<b>Strand 2</b>	Communicating: Multimedia
<b>Strand 3</b>	Understanding & Sharing Data
<b>Strand 4</b>	Programming A & Computational Thinking
<b>Strand 5</b>	Programming B & Computational Thinking

These strands do not need to be taught in this order across the year, but rather where they fit in with the wider curriculum. Ideally Strand 4 will be taught prior to Strand 5, and with time in between the two.

EYFS – Pedagogy:

The scheme of work also contains ten units organised into the following areas, to map to the Early Learning Goals. Note that although Technology is not included in the reformed ELGs, EYFS will cover this area to prepare young people for their lives in an increasingly digital world allowing children to explore and use technology alongside learning in other areas of the curriculum:

<b>A</b>	<b>Technology</b>
	A1 - What is a Computer? A2 - We Control Technology A3 - Tinkering: Bee-Bots
<b>B</b>	<b>Communication and Language</b>
<b>C</b>	<b>Personal, Social and Emotional Development</b>
<b>D</b>	<b>Physical Development</b>
<b>E</b>	<b>Literacy</b>
<b>F</b>	<b>Mathematics</b>
<b>G</b>	<b>Understanding the World</b>
<b>H</b>	<b>Expressive Arts and Design</b>

### Cross Curricular links:

Teachers ensure that all children have plenty of opportunities every half term to use technology in other subject areas to enhance learning. When using technology to enhance their learning of another subject, it is purposeful and provides opportunities for children to demonstrate their confident use of Computing knowledge and skills already acquired, or allows an opportunity to develop new computing knowledge and/skills.

### **Impact**

Our approach to the curriculum results in a fun, engaging, and high-quality computing education. The quality of children's learning is evident in children's exercise books, as well as on computer file locations, where children reflect on their own working and peer assess each other's learning. Evidence such as this is used to feed into teachers' future planning, and teachers are able to revisit misconceptions and knowledge gaps in computing when teaching other curriculum areas. This supports varied paces of learning and ensures all pupils make good progress. Much of the subject-specific knowledge developed in our computing lessons equip pupils with experiences that will benefit them in secondary school, further education and future workplaces. For example: research methods; use of presentation and creative tools; critical thinking; and logical reasoning are all skills which are useful and can be applied in a variety of other contexts. Computing at Birley Spa gives children the building blocks that enable them to pursue a wide range of interests and vocations in the next stages of their lives.