

Our vision for Science at Birley Spa Primary Academy

Intent

At Birley Spa Primary Academy we are Scientists! We want our children to love Science and understand it as part of their day to day life. We want them to have no limits to their ambitions, and grow up wanting to be doctors, nurses, researchers, nutritionists, pharmacists, climate control advocates, meteorologists, zoologists, psychologists – all the 'ologists'!

Implementation (including pedagogy)

At Birley Spa, we aim to ensure that every child has the opportunity to access at least sixty minutes of Science a week, while covering all aspects of the Science national curriculum. We want them to discover, explore and understand their part in the world around them. Science is taught weekly and evidenced by work in books. The exception to this has been Y3 who have taught their Science units in lessons throughout one week each half term.

Throughout Y1-Y6 we use the Rising Stars Scheme of Work – Switched on Science – which provides full coverage of the Primary Science curriculum, which helps pupils to progress their knowledge, understanding and skills. It is 'activity heavy' with a focus on child centred learning. The curriculum is designed to ensure that children are able to acquire key scientific knowledge through practical experiences; using equipment, conducting experiments, building arguments and explaining concepts confidently.

At Birley Spa Primary Academy, the Science curriculum fosters a healthy curiosity in children about our universe and promotes respect for the living and non-living. Throughout the programmes of study, the children will acquire and develop the key knowledge that has been identified within each unit and across each year group. The key knowledge identified by each year group is informed by the national curriculum and builds towards identified phase 'end points' in accordance with NC expectations. Key skills are also mapped for each year group and are progressive throughout the school.

Cross curricular opportunities are also identified, mapped and planned to ensure contextual relevance.

Teachers create a positive attitude to Science learning within their classrooms and reinforce an expectation that all pupils are capable of achieving high standards in Science. Our whole school approach to the teaching and learning of Science involves the following;

- Science will be taught in planned and arranged topic blocks by the class teacher.
- Existing knowledge is checked at the beginning of each topic. This ensures that teaching is informed by the children's starting points and that it takes account of pupil voice, incorporating children's interests.
- Through our planning, we involve problem solving opportunities that allow children to apply their knowledge, and find out answers for themselves. Children are encouraged to ask their own questions and be given opportunities to use their

scientific skills and research to discover the answers. Planning involves teachers creating engaging lessons, often involving high-quality resources to aid understanding of conceptual knowledge. Teachers use precise questioning in class to test conceptual knowledge and skills, and assess pupils to identify those children with gaps in learning, so that all pupils keep up. Tasks are selected and designed to provide appropriate challenge to all learners.

- We build upon the knowledge and skill development of the previous years. As the children's knowledge and understanding increases, they become more proficient in selecting, using scientific equipment, collating and interpreting results. They also become increasingly confident in their growing ability to come to conclusions based on real evidence.
- Working Scientifically skills are embedded into lessons to ensure that skills are systematically developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics.
- When applicable, children are offered a wide range of extra-curricular activities, visits, trips and visitors to complement and broaden the curriculum. These are purposeful and link with the knowledge being taught in class.

EYFS:

In EYFS, science is explored through the Understanding the World Early Learning Goal (The Natural World). At Birley Spa, we follow The Curiosity Approach. Children explore and investigate the world around them supported by interested adults who encourage the children's awe and wonder through questioning and modelling. 'I wonder why.....? What would happen if.....' Outdoor learning is crucial to daily routines so children understand change through their own experiences and develop new vocabulary in context. Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers. This curiosity is celebrated within the classroom.

Early Learning Goals

- Communication and Language – Make comments about what they have heard and ask questions to clarify their understanding of what they have heard.
- Personal Social, and Emotional Development – Children Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.
- Understanding the World – Explore the natural world around them, making observations and drawing pictures of animals and plants.
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Key Stage 1 and Key Stage 2:

An investigative lesson taught at KS1 and KS2 may look like this:

- Introduction (5 minutes) - Introduce the Learning Objective, Success Criteria and the scientific skill
- Input (10 minutes) – Teacher introduces concept and related vocabulary.
- Pupils Skill Development (15 minutes) - Teacher introduces the skills linked to the Learning Objective in small steps. Pupils discuss predictions and choose variables and non-variables of investigation.
- Investigation (25 minutes) Teacher models what they want the children to do. Children may also be given video examples of what is expected from the lesson. The vocabulary linked to the lesson will also be used during this time.. Pupils carry out investigation using scientific equipment or innovative resources.
- Conclusion (10 minutes) Pupils consider results of investigation against backdrop of their predictions.

Impact

The successful approach at Birley Spa Primary Academy results in a fun, engaging, high-quality Science education that provides children with the foundations and knowledge for understanding the world.