



# Lord Blyton Primary School

## Science- Intent, Implementation, Impact Statement

### Science Statement of Intent

At Lord Blyton, we recognise how science impacts every aspect of daily life, and without science humankind would not have made progress throughout history. As one of the core subjects taught at primary level, we give the teaching and learning of science the prominence it deserves.

Learning science is concerned with increasing pupils' knowledge of our world, and with developing skills associated with science as a process of enquiry. Our science curriculum develops the natural curiosity of each child no matter their demographic, encourages them to have respect for living organisms, and instil in pupils the importance of caring for the natural environment. We are currently committed to using the PZAZ scheme of work in order to deliver a broad and balanced science curriculum following the National Curriculum objectives.

Meaningful links or connections are made with other subjects wherever appropriate, including: Art, Music, History, English, Maths and Geography and these links develop our overarching learning. Our scheme of work is coherently planned and sequenced towards sufficient substantive and disciplinary knowledge for future learning.

**Substantive Knowledge:** this is the concepts, laws, theories and models which are referred to in the National Curriculum as 'scientific knowledge and conceptual understanding'. Substantive knowledge is the established facts e.g. 'The Earth is the planet on which we live.' Substantive knowledge in science is organised into the 3 subject disciplines: biology, chemistry and physics.

**Disciplinary Knowledge:** this is referred to in the National Curriculum as 'working scientifically' and it includes knowing how to carry out practical procedures. Disciplinary knowledge in science is the methods that establish the substantive facts e.g. 'observation of the sun, moon and stars, satellite photographs.'

By learning substantive and disciplinary knowledge, pupils not only know 'the science'; they also know the evidence for it and how this evidence is gained. New knowledge is built on what has been previously taught while working towards clearly defined end points. When units are repeated throughout the school, vocabulary and knowledge is revisited and it progresses to challenge the children's thinking further as well as introducing new ideas and material.

### Science Lessons

Using the requirements of the Science National Curriculum as our guide, our Science lessons offer opportunities for children to:

- Develop scientific knowledge and conceptual understanding of the disciplines of Physics, Chemistry and Biology.
- Formulate their own questions about the natural world.
- Foster the confidence to 'be wrong' when it comes to making predictions and postulating their own theories.
- Promote an awareness of the importance of teamwork in scientific experimentation.
- Practically investigate their questions using various methods of enquiry.
- Gain competence in the science skills of planning scientific investigations, gathering and analysing data and critical evaluation of investigations across the disciplines.
- Use a range of methods to gather data from investigations and secondary sources including I.C.T., drawings, diagrams, videos and photographs.
- Present data in a variety of methods including tables, bar charts, line graphs, pictograms and pie charts.
- Produce comprehensive science reports that demonstrate their proficiency in the scientific method.
- Have care for the safety of all individuals in lessons by developing knowledge of the hazards of the materials and equipment they handle, along with mitigating these hazards.
- Develop an enthusiasm and enjoyment of scientific learning and discovery.

## **Teacher improvement**

Our teachers are encouraged to continually improve their knowledge and practical competence by:

- Having access to CPD videos that cover every area of the National Curriculum.
- Having a minimum of one science lesson observation per school year with feedback.
- Attending science themed staff meetings per school year.
- Inspection of pupil work via scrutiny of book work and learning walks.
- Termly analysis of pupil progress in science.

## **Science Coordinator Role**

The school has appointed a science coordinator whose responsibility it is to oversee the science function of the school. They will:

- 1) Strive to continually improve all aspects of the school's science function.
- 2) Control the budget allocated to the science function.
- 3) Complete annual audit of resources and keep records of these.
- 4) Purchase sufficient resources that allows the school to adhere to the principles as set out in the 'Science Lessons' section above.
- 5) Monitor the impact of the PZAZ scheme by assessing and track pupil progress
- 6) If necessary, approve personalised remedial actions for pupils who fall behind.
- 7) Improve their own practical and technical knowledge of science.
- 8) Conduct annual reviews of the school's science provision.
- 9) Communicate with teaching staff when necessary.
- 10) Report to the Senior Leadership Team.

## **At Lord Blyton:**

Children have weekly lessons in Science throughout the school. Key Stage 1 lessons last for 1/1.5 hours, and KS2 lessons 2 hours, using various programmes of study and resources. In Early years, science is taught through the children learning by play and through practical tasks and activities. Additional opportunities are provided in Science, such as educational visits, participation in various STEM events, participation in British Science Week, science/STEM club etc.

We endeavour to ensure that the Science curriculum we provide will give children the confidence and motivation to continue to further develop their skills into the next stage of their education and life experiences.

## **Implementation**

Teachers create a positive attitude to science learning within their classrooms and reinforce an expectation that all children can achieve high standards in science. Teaching is set out thus:

- Science will be taught as set out by the year group requirements of the National Curriculum. This is a strategy to enable the accumulation of knowledge and allows progress in repeated topics through the years.
- Pupils will concentrate on one science skill per term. Term 1 will be dedicated to planning investigations, Term 2 to results gathering and analysis, and Term 3 will be spent evaluating practical work. Although each skill is related and there are links between them, there is minimum crossover as they are taught, so each becomes firmly embedded.
- Through our planning, we involve problem solving opportunities, allowing children to find out for themselves how to answer questions in a variety of practical means. Children are encouraged to ask their own questions and be given appropriate equipment to use their scientific skills to discover the answers.
- Engaging lessons are created with each lesson having both practical and knowledge elements. Teachers use precise questioning in class to test conceptual knowledge and skills and children are regularly assessed to identify those children with gaps in learning, so that all children keep up.
- We build upon the learning and skill development of previous years. As the children's knowledge and understanding increases, and they become more proficient in selecting and using scientific equipment, collating and interpreting results, they become increasingly confident in their growing ability to come to conclusions based on real evidence.

- Working Scientifically skills are explicit in lessons to ensure these skills are being 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 theme of the lesson.
- Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding. Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning and workshops with experts.

### **Statement of Impact**

The successful approach at Lord Blyton results in a fun, engaging, high-quality science education, that provides children with the foundations for understanding the natural world. Our engagement with the local environment ensures that children learn through varied and first-hand experiences. Much learning takes place outdoors so pupils can investigate their immediate environment. Through various workshops, trips and interactions with experts and local charities, children have the understanding that science has changed our lives and that it is vital to the world's future prosperity. Children learn the possibilities for careers in science as a result of our community links and connection with national agencies such as the STEM association. Pupil voice is used to further develop the Science curriculum, through questioning of pupil's views and attitudes to Science to support the children's enjoyment of science and to motivate learners.