



# Otterbourne Church of England Primary School

## Subject:

## Statement of Intention, Implementation and Impact

### Intention:

Science at Otterbourne is an exciting multi skilled subject that offers opportunity for every child to thrive. In its delivery, the science curriculum nurtures curiosity and creativity, and extends this into questioning and problem solving. Lessons are planned around a practical discovery based approach paired with enquiry based teaching and learning making science accessible to all. There is a constant focus on developing working scientifically skills to build competent skilled little scientists. This is underpinned by the two key *Golden Threads of Science* at Otterbourne, *The Inquisitive Mind*, and *The Scientific Method*.

Across the key stages children develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics. This is strongly intertwined with the progression of key working scientifically skills which are shared with the children and focussed on through questioning, investigation and the rigour of scientific methodology. The *Pillars of our Curriculum* support our children's understanding of their place in the world (*Diversity and Equality Pillar*) and the significance of science as a way to make sense of it. We also promote a passion for being in the outdoor world (*Sustainability and Change Pillar*) and appreciation for the beauty within it (*Aspiration and Wellbeing Pillar*).

Through regular outdoor learning children develop an understanding of nature and the changing seasons. This is reinforced with a yearlong longitudinal study allowing children to raise their own questions about the factors affecting lifecycles of local flora and fauna as well as consolidating equipment based measuring skills, data collection and interpretation. This represents an important *Golden Thread in Science: The cycles of life*.

Consistency in teaching and delivery of a full and scientific curriculum is ensured across the key stages and year groups. Responsibility for this comes from preparation of materials and content by the subject leader.

*Science is an inclusive subject*; children can achieve and access the curriculum at all levels making the development of science knowledge, understanding and skills accessible for all.

We have ambitious goals for every child; encouraging children to develop a sense of excitement and curiosity about natural phenomena by promoting challenge, resilience and confidence through problem solving and enquiry based learning.

### Implementation:

**The NC** has been planned into discrete age appropriate medium term plans and resources using high quality resources ensuring consistency across parallel classes. Lesson plans insist upon a strongly enquiry based teaching and learning style using practical experimentation with constant focus on developing working scientifically skills. Children have access and over view of the skills required of them, and are encouraged to record their scores on working scientifically score cards in their books. They are also given opportunities to add to their 'Safety in science' knowledge as they progress.

- Planning for science has been delivered by a science specialist, and includes detailed plans, investigations, flipcharts and resources. Plans include: safety in science /cleaps/ haz cards.
- Pupil's books include: safety in science mind map to show progression, and Working Scientifically card. Working Scientifically: marking and recording in books.

Delivering a broad and balanced enquiry based science education to our children is a core principle of our school. Science teaching in the school is about excellence, problem solving and discovery. We adapt and extend the curriculum to match the unique circumstances of our school and its surroundings.

KS1 and Foundation stage teachers teach science for a minimum of one and a half hours each week.

KS2 teachers teach science for a minimum of two hours per week.

In KS2, KS1 and Foundation stage, a minimum of half of all lessons overall include practical scientific enquiry or specific working scientifically skills and includes Outdoor Learning opportunities in each half term topic.

Our science learning journey is available on the school website and compliments other topics in the curriculum. It ensures progression between year groups and builds upon working scientifically.

Teachers adapt and modify the model plans to suit their children's interests, current events, their own teaching style, the use of any support staff and the resources available.

To better suit the needs of individual classes or mixed-age groups, units may have been moved between years or amalgamated, where appropriate. However science is taught each week, every half term throughout the school year. Also each half term every class adds to a longitudinal study which runs through the year and allows long term hypothesis, questioning and data collection to occur in a collaborative context. These studies are carried out by the class teacher, displayed in class and supported and monitored by the Science Coordinator.

The subject leader has identified the key knowledge and skills of each topic and consideration has been given to ensure progression across topics throughout each year group across the school using the **golden threads** of **THE INQUISITIVE MIND** (Enquiry based, discovery learning through practical hands on experiences), **THE SCIENTIFIC METHOD** (Working scientifically), **THE CYCLES OF LIFE** (Outdoor learning and Longitudinal Studies), **THE IMPACTS OF SCIENCE AND SCIENTISTS** (Uses and Implications of science in the past, today and the future.)

Enrichment opportunities include: International Outdoor Classroom Days, Longitudinal Study in each class, every half term; recorded on a Longitudinal Study Board. Seasonal events are marked by displays on the Nature table. Links between well-being, mental health and nature are made through our commitment to outdoor learning; this includes participation in the Wildlife Trusts 30 days wild each year.

## Impact:

Teachers create a positive attitude to science learning within their classrooms and reinforce an expectation that all children are capable of achieving high standards in science. At Otterbourne Primary School our whole school approach to the teaching and learning of science involves the following;

We use assessment to inform and develop our teaching.

- We assess for learning (AfL). Children are involved in the process of self-improvement, recognising their achievements and acknowledging where they could improve. Activities during, and at the end of, each topic record achievement and celebrate success.
- We mark work positively, making it clear verbally, or on paper, where the work is good, and how it could be further improved. (pink and green pen policy) Also where relevant Working Scientifically skills are marked on a three tick system and recorded by children on their score card. Assessment records are updated on target tracker.
- We have a tracking system to follow children's progress. The school science coordinator monitors progress through the school by sampling children's work at regular intervals. Children who are not succeeding, or children who demonstrate high ability in science, are identified and supported. Progress is formally recorded on Target tracker every half term.
- The Y2 & Y6 staff assess children's attainment and progress at the end of each key stage. This is based on assessment records and work samples from across the key stage and is support by the science coordinator and previous class teachers if needed.
- Reports to parents are made verbally each term, and written once a year, describing each child's attitude to science, his/her progress in scientific enquiry and understanding of the content of science.
- Work sampling is carried out twice a year as is pupil interviewing. This informs the coordinator about support needed or evidence that plans are being implemented with impact.

Impact of learning will be assessed through: Interviews, deep dives, assessing whether or not children can answer questions about BIG IDEAS and make links to prior learning etc.

As a result of science teaching children at Otterbourne will:

- Demonstrate a curiosity for science understanding and knowledge and develop a view of famous scientists and their role in science.
- Retain knowledge that is pertinent to Science with a real life context.
- Show an understanding of the effect of seasons on habitats and life cycles local to them.
- Be able to question ideas and reflect on knowledge.
- Be able to articulate their understanding of scientific concepts and be able to reason scientifically using rich language linked to science.
- Demonstrate statistical skills through their work, organising, recording and interpreting results.
- Work collaboratively and practically to investigate and experiment.