



## Science: Intent, Implementation, Impact

### Intent

The 2015 National Curriculum for Science aims to ensure that all children:

- Develop scientific knowledge and conceptual understanding through the specific disciplines of Biology, Chemistry and Physics.
- Develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them.
- Are equipped with the scientific skills required to understand the uses and implications of science, today and for the future. We understand that it is important for lessons to have a skills-based focus, and that the knowledge can be taught through this.

Science teaching at North Clifton Primary School aims to develop a sense of excitement and curiosity about natural phenomena and an understanding of how the scientific community contributes to our past, present and future.

We want pupils to develop a complex knowledge of Biology, Chemistry and Physics, but also adopt a broad range of skills in working scientifically and beyond. We have adopted the Kapow scheme of work which encourages:

- A strong focus on developing knowledge alongside scientific skills across Biology, Chemistry and Physics.
- Curiosity and excitement about familiar and unknown observations.
- Challenging misconceptions and demystifying truths.
- Continuous progression by building on practical and investigative skills across all units.
- Critical thinking, with the ability to ask perceptive questions and explain and analyse evidence.
- Development of scientific literacy using wide-ranging, specialist vocabulary. (*Kapow, 2024*)

### Implementation

We provide a broad and balanced Science curriculum that is progressive throughout the whole school which enables children to build up their knowledge from Foundation to Year 6. The Science curriculum is delivered through weekly discrete Science lessons, as well as making links between Science and other subjects. We take part in Science Week each year and endeavour to provide opportunities for children to develop their scientific knowledge and skills through additional enrichment activities making use of our extensive school grounds, such as gardening, growing our own produce, making bird feeders or creating bug hotels.

Our delivery of the Science curriculum is carefully mapped out to ensure full curriculum coverage of the Science curriculum in our mixed age classes. In **Foundation and Key Stage 1**, a two-year planning cycle is

implemented and in **Key Stage 2** separate lessons take place for Y3/4 and Y5/6 on a two-year planning cycle.

In order to meet the aims of the National Curriculum for Science and in response to the Ofsted Research review into Science, we teach:

- Scientific knowledge and understanding of:
  - Biology- living organisms and vital processes
  - Chemistry-matter and it's properties
  - Physics- how the world we live in 'works'
- Working scientifically- processes and methods of science to answer questions about the world around us.
- Science in action- uses and implications of science in the past, present and for the future.

Kapow's Primary's Science scheme is a spiral curriculum, with essential knowledge and skills revisited with increasing complexity, allowing pupils to revise and build on previous learning.. The Science in action strand is interwoven throughout the scheme to make the concepts and skills relevant to pupils.

Plants

Animals, including humans

Living things and their habitats

Materials

Energy

Forces, earth and Space.

Pupils explore knowledge and conceptual understanding through engaging activities and introduction to relevant specialist vocabulary. The 'working scientifically' skills are integrated with conceptual understanding rather than taught discreetly, providing frequent and relevant opportunities for developing scientific enquiry skills. (Kapow, 2024).

### Recall, Retrieve and Assessment

Pupils are regularly given the opportunity for Self or Peer Assessment, which will then be used to inform planning, preparation, differentiation and address misconceptions within that lesson, or for future lessons. Self-assessment grids are used by the children to help show their understanding. Lesson planning includes regular opportunities and a range of strategies to recall and retrieve information from the children's working and long-term memories. Summative assessments take place at the end of units of work and are used to inform future planning.

### Impact

At North Clifton we provide a fun, engaging, high-quality science education, that provides children with the foundations for understanding the world. Our engagement with the local environment ensures that children learn through varied and first-hand experiences of the world around them. So much of science lends itself to outdoor learning and so we provide children with opportunities to experience this.

Our children acquire both the appropriate age-related knowledge linked to the Science curriculum, as well as a wider set of skills linked to enquiry and investigation. They enjoy and are enthusiastic about Science. Through our Science curriculum the children will develop a richer scientific vocabulary enabling them to talk about their learning with confidence, as well as higher aspirations for their further studies and for life in the future.