

Science at Clifton Primary School

Subject lead: Philip Power

Intent and rationale

The science curriculum at Clifton is one which allows children to explore and learn about a range of key scientific concepts. We aim to create independent learners with a positive outlook on learning new skills, as well as retaining – and building upon – their existing knowledge. Whether this be a topic that they can directly relate to, such as *everyday materials* or *seasonal changes*, or even more mature topics like *forces* or *electricity* – we want to equip our children with the tools needed to work and think scientifically, and present them with opportunities in which they can pursue their interest in science further.

The curriculum for science is constructed in a way that allows children to continue on their learning journey whilst progressively gaining more knowledge in each topic. To ensure this learning is not forgotten, similar topics are revisited after several years to embed the skills already learnt. In year 1, children learn about animals (including humans) to create curiosity about how our bodies work and to identify common animals. This topic is built upon further during year 2 whereby children explore different animals' habitats and how humans change as they grow. In years 3, 4 and 5, *living things and their habitats* is taught, gradually becoming more challenging for children and allowing their knowledge within this area to grow further.

Other topics in KS1 include *seasonal change*, where children study basic weather associated with different seasons and how this may affect plants that we see around us. *Everyday materials* allows children to understand the properties of materials they encounter and how their choices can affect the suitability of making items. Topics such as these allow for scientific enquiry and investigations to take place through concepts that younger children can understand and relate to.

In key stage 2, children learn about the properties of *light* and how it is important to protect ourselves from bright lights. *Rocks*, *sound* and *states of matter* are other concepts which are explored to broaden our children' thinking and expose them to a wide variety of interesting topics.

In upper key stage 2, *Earth and space*, *electricity* and *forces* are examples of topics that are more fitting to the children's age in order to expand their scientific knowledge. This suitably challenges our children to learn new skills through a rich, broad curriculum covering a wide range of themes, which in turn promotes scientific thinking and stimulates curiosity about the world around us.

We will equip our children with the key scientific skills required to carry out science investigations and will show inquisitiveness when learning about new topics – through their questioning, predictions and enquiry to find answers to presented hypotheses within lessons. We will encourage the children to use their knowledge and skills to become independent and resilient learners when problem solving and exploring unknown scientific concepts.

The journey of their learning will allow existing knowledge to be built upon further, and ultimately deepen their understanding of science throughout their primary education. We will

ensure that our children will enjoy science lessons alongside having the freedom to explore, investigate and use scientific equipment to aid their learning. The children will have opportunities to engage in discussions outside of lessons about the world around them and the Earth's processes. This will enable them to demonstrate curiosity and intrigue to gain a better understanding of concepts which relate to the world in which they live.

Implementation

Our children begin scientific exploration from key stage 1 by making predictions and carrying out investigations. They are encouraged to use equipment and get 'hands on' so that the learning can be brought to life. This also stimulates learning and creates a memory map of skills learnt by the children through linking their knowledge to a variety of experiments carried out in class. Children record the results of their investigations to allow them to become familiar with scientific methods.

Science lessons are a fantastic platform for dialogue between children and teachers to take place. We actively encourage children to ask questions about their learning to create more interest and allow all children to deepen their understanding. Speaking and listening is a fundamental part of our science lessons at Clifton - speaking with others when carrying out investigations is important, so too is being able to feedback their findings with the rest of the class in order to find similarities and differences with others' data.

Vocabulary is another key part of our teaching. Science presents an array of new, technical vocabulary which may be unfamiliar to children. We encourage children to use these words in their written and verbal communication. This allows for subject specific words to be understood within the context of new learning and – alongside scientific enquiry – enables children to make progress within the subject.

In key stage 2, children begin to look at a variety of data (such as graphs, pictures, videos and news articles) and compare this with their own findings in class, including looking at well-known scientists and their discoveries. These aspects of learning enrich the topic of science through linking new knowledge with historical accounts. This is especially exciting in key stage 2 due to cross-curricular links with subjects such as history and geography – again, creating a foundation for future learning to take place and to be built upon.

In addition to investigations that children take part in within class, there are a range of extra-curricular activities. *Science and health fortnight* is a whole-school project whereby each year group will carry out experiments and investigations based on an overarching theme. It allows children to freely explore a topic and to take ownership of it. *STEM Club* is a club for those with an interest in science and a willingness to pursue this further with exciting investigations and projects delivered in small groups. *The Great Science Share* is a large event towards the end of the academic year in which a select few have the fantastic opportunity of presenting an investigation of their own in a university setting. Finally, *World Explorers Club* incorporates geography and science by allowing a group of children to have fun learning about the world around us, from natural events on Earth, to human activity – with lots of unique knowledge acquired along the way.