Science justification of teaching

2022-2023

Science programmes of study in the national curriculum are assigned to year groups; however, as this is not compulsory, we have assigned our topics to key stages on a two year rolling cycle which will ensure children have had complete coverage of the curriculum by the end of key stage 2. Physics is not formally introduced until Key Stage 2. However, in Key Stage 1, children have opportunities to explore natural phenomena, such as shadows.

In Curriculum 22, the names of our science projects correspond to the national curriculum aspects, for example, **Living things and their habitats** and **Earth and space**. However, in Key Stage 1, the aspect of **Animals, including humans** has been separated so that children study humans initially before broadening to explore animals. The science projects are sequenced in a way which develop children's substantive and declarative knowledge, and where possible, make meaningful links to other projects.

In Key Stage 1 (cycle 1), children begin the autumn term with **Everyday materials**, linking this learning to the design and technology project **Shade and Shelter**. In the **Humans** project, they learn about parts of the human body and those associated with the senses. In the spring project **Seasonal changes**, they learn broadly about seasonal changes linked to weather, living things and day length. They revisit some of this learning in the following summer term project **Plants**. They finish with the project **Animals**, linking back to their knowledge about body parts and senses that was introduced in EYFS (knowledge and understanding of the world) and identifying commonalities.

Having learned about human body parts, the senses and survival in Key Stage 1, children now focus on specific body systems and nutrition in Key Stage 2. In the autumn term of cycle 1 for Key Stage 2, lower KS2 learn about the skeletal and muscular system in the project **Animals, including humans** whilst UKS2 build on this further, learning about the final body system, the circulatory system. This learning again links to other animals, with children identifying similarities and differences. Children also learn about healthy diets alongside the autumn term design and technology project **Food for Life**. Science learning about classification is delivered through the spring term geography project **Frozen Kingdoms**.

In the spring term, children in LKS2 will study electricity by creating and recording simple circuits in the project **Electricity**. They also build on their knowledge of the properties of materials, identifying electrical conductors and insulators. At the same time, UKS1 also build on their knowledge about electrical circuits from Year 4, now learning and recording standard symbols for circuit components and investigating the function of components and the effects of voltage on a circuit in the project **Electricity**.

The summer term begins with the project **Light** for LKS2, where they are explicitly introduced to the subject of light, with children learning about shadows and reflections, revisiting language from Key Stage 1, including opaque and transparent.

UKS2 will study **Light Theory** where children build on previous knowledge and recognise that light travels in straight lines from a source or reflector to the eye and explain the shape of shadows. For LKS2, the final summer topic is **Living things and their habitats** where children recognise this as ‘classification’ and explore classification keys. The summer term ends with the project **Evolution and inheritance** for UKS2 where children learn about inheritance and understand why offspring are not identical to their parents. They also learn about natural selection and how this can lead to the evolution of a species.

In Key Stage 1 (cycle 2), children begin the autumn term with the project **Humans**, learning about the survival needs of humans, before expanding to study animals within their habitats in the project **Living things and their habitats**. Children learn about the uses of materials in the spring project **Uses of everyday materials** and begin to understand changes of materials through simple physical manipulation, such as bending and twisting. The spring **Plants** project also explores survival, with children observing what plants need to grow and stay healthy. Finally, in the project **Animals**, children bring together learning from the autumn term, thinking about what animals need to survive.