# Science Curriculum Overview

## Science Intent

At Horizon Academy Trust, we encourage children to be inquisitive throughout their time at our schools and beyond. The Science curriculum fosters a healthy curiosity in children about our universe and promotes respect for the living and non-living. We believe science encompasses the acquisition of knowledge, concepts, skills, and positive attitudes.

Throughout the programmes of study, the children will acquire and develop the key knowledge that leaders have identified within each unit and across each year group. The key knowledge identified by each year group is underpinned by the national curriculum and builds towards identified phase 'end points.' Alongside knowledge, scientific skills are also mapped for each year group and are progressive throughout the school. These too ensure systematic progression to identified end points which are in accordance with the Working Scientifically skills expectations of the national curriculum.

The curriculum is designed to ensure that children can develop scientifically through practical experiences, using equipment, conducting experiments, building arguments, and explaining concepts confidently. Each school's approach to science takes account of the school's own context, ensuring access to people with specialist expertise and places of scientific interest as part of the commitment to learning outside the classroom.

Cross curricular opportunities are also identified, mapped, and planned to ensure contextual relevance. Children are encouraged to ask questions and be curious about their surroundings and a love of science is nurtured through a whole school ethos and a varied science curriculum. Theme and experience days are planned to further foster a curiosity and enquiring mind in all our children.

## Science Implementation

All teachers create a positive attitude to science learning within their classrooms and reinforce an expectation that all pupils can achieve ambitious standards in science.

Units of work build progressively on existing knowledge which is checked at the beginning of each unit. This ensures that teaching is informed by the children's starting points and that it takes account of pupil voice, incorporating children's interests.

# Science Curriculum Overview

## Science Implementation (continued)

Within each unit problem solving opportunities are built in allowing children to apply their knowledge and find out answers for themselves. Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers. This curiosity is celebrated within the classroom. Planning involves teachers creating engaging lessons, often involving high-quality resources to aid understanding of conceptual knowledge. Teachers use precise questioning in class to test conceptual knowledge and skills and assess pupils regularly to identify those children with gaps in learning, so that all pupils keep up. Tasks are selected and designed to provide appropriate challenge to all learners, in line with each school's commitment to inclusion.

Working Scientifically skills are embedded into lessons to ensure that skills are systematically developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is mapped across KS1 and KS2 to ensure these skills build as children move through school.

When possible, children are offered a wide range of extra-curricular activities, visits, trips, and visitors to complement and broaden the curriculum. These are purposeful and link with the knowledge being taught in class.

Regular events, such as Science Week or project days, such as Nature Day, allow all pupils to come off-timetable, to provide broader provision and the acquisition and application of knowledge and skills. These events often involve families and the wider community.

At the end of each unit, key knowledge is reviewed by the children and rigorously checked by the teacher and consolidated, as necessary.

# Science Curriculum Overview

## Rationale for Sequencing

The Science curriculum at Horizon is sequenced so that children develop knowledge and skills across four main concepts: Biology, Chemistry, Physics, and Scientific Enquiry. Units of learning have been chosen based on the National Curriculum. These units sequentially build knowledge within each of the strands. For example, all year groups study the unit 'Animals, including humans,' but this is sequenced so that layers of understanding build as children progress through school, ensuring by the end of KS2 children have a detailed knowledge and understanding of some complex processes such as the digestive and circulatory system.

Each unit focuses on a specific aspect of scientific enquiry, these are identified as: Pattern Seeking, Comparative and Fair Testing, Observing Over Time, Research Using Secondary Sources or Identifying, Classifying and Grouping. This ensures that children develop a balanced diet of enquiry skills as they progress through school.

Each unit is also developed through a 'Big Investigation Question.' These help to develop a natural curiosity in our children allowing them to investigate problems and learn how science works. Investigation questions make learning 'real' and ensures children understand why science matters in the world, considering a range of issues which will impact on their lives in the future.