Our Lady and St Philomena's Catholic Primary School
Science Policy

Approved by:	Governing Body	Date: September 2024
Last reviewed:	September 2024	
Next review due by:	September 2025	

Rationale

Our Science curriculum 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 encourage pupils to realise that scientific knowledge is constantly changing and that they can contribute to scientific discoveries. Our children will learn that there are many careers linked to the study of science, such as biologist, chemist, physicist, astronomer, engineering, agriculture and in the emerging industries linked to sustainability and climate change.

Curriculum Intent

We use the Kapow Science scheme of work, implemented in 2023.

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. The scheme of work is inclusive and meaningful, so all pupils may experience the joy of science and make associations between their science learning and their lives outside the classroom. Studying science allows children to appreciate how new knowledge and skills can be fundamental to solving arising global challenges. Our curriculum aims to encourage critical thinking and empower pupils to question the 'hows and whys' of the world around them.

Our scheme encourages:

● A strong focus on developing knowledge alongside scientific enquiry 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. The scheme of work enables pupils to meet the end of key stage attainment targets in the national curriculum and the aims also align with those set out in the national curriculum.

Curriculum Implementation

In order to meet the aims of the National curriculum for Science, we teach the following strands: biology, chemistry, physics and working scientifically. Science in action - uses and implications of science in the past, present and for the future is taught throughout the scheme. Our scheme is a spiral curriculum, with essential knowledge and skills revisited with increasing complexity, allowing pupils to revise and build on their previous learning. A range of engaging recall activities promote frequent pupil reflection on prior learning, ensuring new learning is approached with confidence. The Science in action strand is interwoven throughout the scheme to make the concepts and skills relevant to pupils and inspiring for future application.

Each unit is based upon one of the key science disciplines; Biology, Chemistry and Physics and to show progression throughout the school we have grouped the National curriculum content into six key areas of science: Plants Animals, including humans, Living things and their habitats, Materials, Energy, Forces, and Earth and space.

Pupils explore knowledge and conceptual understanding through engaging activities and an introduction to relevant specialist vocabulary. As suggested in Ofsted's Science research review (April 2021), the 'working scientifically' skills are integrated with conceptual understanding rather than taught discretely. This provides frequent, but relevant, opportunities for developing scientific enquiry skills. The scheme utilises practical activities that aid in the progression of individual skills and also provides opportunities for full investigations.

Each year group will study a 'Making Connections' unit that delves beyond the essential curriculum, assimilating prior knowledge and skills to evoke excitement and to provide an additional method of assessing scientific attainment. Lessons incorporate various teaching strategies from independent tasks to paired and group work, including practical, creative, computer-based and collaborative tasks. This variety means that lessons are engaging and appeal to those with different learning styles.

Topic cover pages are used for each unit to help identify prior and future curriculum links to make the scheme as meaningful as possible and reinforce key technical terms.

Strong subject knowledge is vital for staff to deliver a highly effective and robust Science curriculum. Each unit of lessons includes multiple teacher videos and resources to develop subject knowledge, target fundamental misconceptions effectively and support ongoing CPD. Videos created by subject specialists feature troubleshooting advice for practical work that does not go to plan, suggested questioning and support for tackling misconceptions, as well as recordings of practical tasks that can be utilised as demonstrations in the classroom or to support pupil reflection on their own observations.

Curriculum Impact

Low-stakes quizzes and ongoing assessment will be used to assess pupils on through each lesson, across the unit and throughout the year. Teachers assess pupils by observing them during lessons and intervene to address misconceptions at the earliest opportunity. They use the information gathered during such observations to inform their planning for the next lesson. Termly assessment is carried out by staff to measure the progress of students within a year group and across year groups and to identify those pupils who made need extra support.

The expected impact of following the Kapow Primary Science scheme of work is that children will meet the end of key stage expectations outlined in the Science National Curriculum by:

● Developing a body of foundational knowledge for the Biology, Chemistry and Physics topics in the National curriculum.

● Evaluating and identifying the methods that 'real world' scientists use to develop and answer scientific questions.

● Identifying and using equipment effectively to accurately gather, measure and record data.

● Conveying data in a variety of ways, such as tables and graphs.

● Analysing data in order to identify, classify, group, and find patterns.

● Using evidence to formulate explanations and conclusions.

● Demonstrating scientific literacy through presenting concepts and communicating ideas using scientific vocabulary.

● Understanding the importance of resilience and a growth mindset, particularly in reference to scientific enquiry.

INCLUSION AND DIFFERENTIATION

Guidance for adapting the learning is available for every lesson to ensure that all pupils can access learning, and opportunities to stretch pupils' learning are available when required.

We respect pupils' unique starting points and we teach science to all children, whatever their ability and individual needs. Science forms part of our school curriculum policy to provide a broad and balanced education for all our children. Our teachers provide learning opportunities that are matched to the needs of children with learning difficulties. We strive to meet the needs of all pupils with special

educational needs, disabilities, special gifts and talents, and of those learning English as an additional language.

When the performance of a child falls significantly outside the expected range and they have special educational needs, we assess the needs of each pupil and take action to enable the child to learn as effectively as possible. Intervention through Quality First Teaching or support plans will be put in place. This may include targets specifically related to performance in science, and the teacher will pay attention to these and other learning targets when planning lessons.

MONITORING AND REVIEW

The monitoring of the standards of children's work and of the quality of teaching in science is the responsibility of the subject leader. The work of the subject leader also involves supporting colleagues in their teaching, being informed about current developments in science, and providing a strategic lead and direction for this subject in the school. The subject leader reviews and evaluates the action plan, budget, planning and work books annually.

This policy will be reviewed annually.

Autumn 2024