Science

Subject Leader Report 2024-2025

Subject Leader: Gemma Walton

Autumn Term

This term, the Science Subject Leader has been actively involved in the monitoring and delivery of Science across the school. This has involved the observation of lessons, conducting learning walks, and reviewing children's books and engaging with children in their knowledge and understanding of Science at Masefield. These activities have provided valuable insights into the teaching and learning of Science and have enabled the subject leader to further develop the provision of Science across school.

Early Years Foundation Stage (EYFS):
In Reception and Nursery, children have been immersed in learning about the natural world. It has been fantastic to observe children developing their understanding of the four seasons and how they differ throughout the year. The provision in EYFS is outstanding, and the learning environment has enabled children to apply their scientific knowledge through continuous provision and play. For instance, children have enjoyed making bird feeders in preparation for the winter months, engaging with nature and understanding how animals are affected by seasonal changes.

Key Stage 1 (KS1):
In Years 1 and 2, the children have been exploring materials, developing their understanding of the differences between materials and objects, and learning how the properties of materials vary. The children have taken part in a hands-on Science workshop where they compared and grouped materials based on their properties. During this session, they were challenged to use their investigative skills to determine the most suitable material for creating an aircraft, enabling them to apply their learning in a practical context.

Lower Key Stage 2 (LKS2):
In Years 3 and 4, the children have been studying light and sound. They have explored the concept that white light consists of a spectrum of colours, and have had the opportunity to use prisms to separate light, offering an engaging, hands-on approach to understanding light. In Year 4, children further enhanced their scientific skills by investigating how sounds are made, how they travel, and the relationship between sound and pitch. They made predictions, conducted experiments, and recorded their findings, particularly focusing on how pitch can change.

Upper Key Stage 2 (UKS2):
In Years 5 and 6, the children have been working on forces and electricity. In Year 5, children conducted a full investigation exploring the relationship between friction and air resistance. They considered dependent and independent variables, and in an exciting practical task, they designed their own parachutes to measure air resistance. Year 6 focused on electricity, where they designed and tested electrical circuits, investigating the effects of changing components such as the brightness of lightbulbs or the volume of buzzers. A workshop on electricity gave children the opportunity to use a range of equipment and experience real-world applications of their learning.

Next Steps:
Moving forward, the focus for Science will be on continuing to develop staff knowledge, particularly in adaptive teaching strategies and the use of practical resources to support scientific inquiry. Teachers will be further supported in using hands-on learning to foster curiosity and develop children's ability to work scientifically. We will also continue to ensure that all children have the opportunity to engage with the practical and investigative aspects of Science across the curriculum.

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Overall, it has been a highly successful term for Science at Masefield, with pupils from all year groups showing a growing enthusiasm and curiosity for the subject. We look forward to continuing to support and challenge our staff and pupils to further develop their scientific skills and understanding.

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Spring Term

This term has been a dynamic period of observation, collaboration, and development across all key stages. The Science subject lead has had the opportunity to observe lessons, conduct learning walks, monitor pupil books, and engage with children to further understand their learning experiences. Alongside this, we have continued to refine and develop our teaching procedures to ensure Science is engaging, relevant, and effective in fostering a curiosity for the natural world.

EYFS (Reception and Nursery):
This term, our youngest learners have been immersed in exploring the natural world. It has been heartening to observe the children's growing understanding of the four seasons, their features, and how these vary throughout the year. The provision in both Reception and Nursery has provided a rich learning environment that enables children to access Science through continuous provision and play. One of the highlights has been their exploration of plant and animal life cycles, which has sparked great interest and inquiry. The children had the wonderful opportunity to visit Smithills Farm, where they observed and discussed the growth of animals in real-life contexts. This hands-on learning experience was invaluable in developing their understanding of how living things grow and change.

KS1 (Year 1 and 2):
In Key Stage 1, the children have been focusing on the topic of "Animals, including Humans." They have learned about the five animal groups and built on prior knowledge to explore the life cycles of different animals. This has included discussions about how animals grow and change over time. Additionally, the children have explored the importance of staying healthy, including learning about the five food groups and how to prevent the spread of germs. As part of our school Knowledge Day, the children took part in an investigation with their parents to explore the five senses and how we use different parts of our body to experience the world. This practical investigation was engaging and informative, reinforcing the concept of using our senses to explore our environment.

LKS2 (Year 3 and 4):
In Lower Key Stage 2, the focus has been on the scientific concepts of forces and magnets. The children have been learning about how forces, such as pushing and pulling, are used to move objects. An exciting investigation was carried out to explore which materials were magnetic or non-magnetic. In Year 4, the children have delved into the concept of states of matter, investigating solids, liquids, and gases and understanding how materials can change state through processes like heating and cooling. These hands-on investigations have helped deepen their understanding of physical properties and scientific concepts.

UKS2 (Year 5 and 6):
Upper Key Stage 2 pupils have been exploring more complex scientific concepts. In Year 5, children have compared the life cycles of different animals across animal groups, identifying key similarities and differences. They also focused on plant and animal reproduction, with a particularly engaging dissection of a variety of plants to study the parts responsible for reproduction. Year 6 has been studying classification, with a focus on Carl Linnaeus and his system for organizing species. The children then created their own classification keys, applying their knowledge to classify a range of organisms. This activity not only solidified their understanding of classification but also encouraged them to think critically and analytically about living organisms.

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Next Steps:
As we look ahead, our key priority will be to continue to support staff professional development, ensuring that teachers have a strong understanding of Science pedagogy and feel confident in delivering practical, inquiry-based lessons. We will also focus on enhancing adaptive teaching techniques and ensuring that practical resources are used effectively to support scientific investigations and work scientifically. This will ensure that all children are actively engaged in developing their scientific thinking and curiosity.

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Summer Term

This term has seen continued development in the consistency and quality of Science teaching across the school. The subject lead has undertaken focused monitoring including book looks, learning walks, and pupil voice discussions to evaluate the impact of science teaching on pupil outcomes. A key focus has been ensuring progression in scientific enquiry skills and greater independence in practical tasks.

EYFS (Reception and Nursery):
Children have continued their exploration of the natural world with a focus on growth and change. They have observed changes in the environment and explored the needs of living things. A highlight this term was planting and caring for beans and sunflowers, with children recording observations of growth over time. This supported their understanding of life cycles and introduced early data collection skills in a practical, hands-on context.

Key Stage 1 (Year 1 and 2):
In KS1, pupils have deepened their understanding of plants. Year 1 children investigated what plants need to grow, carrying out an investigation to test the effects of light and water on seedlings. Year 2 explored how seeds are dispersed and were able to identify and describe different plant parts and their functions. The use of scientific vocabulary has improved, and pupils demonstrated growing confidence in recording observations through labelled diagrams and tables.

Lower Key Stage 2 (Year 3 and 4):
Children in LKS2 have worked on topics related to plants and animals, including a study of nutrition and the human skeleton. Year 3 conducted practical investigations on the function of roots and the movement of water through plants, using coloured water experiments to observe capillary action. Year 4 explored the digestive system and the roles of teeth, conducting experiments using everyday items to model digestion. Across the phase, children are becoming more skilled in planning and evaluating investigations.

Upper Key Stage 2 (Year 5 and 6):
UKS2 pupils have engaged in the study of Earth and Space and the circulatory system. Year 5 created models of the solar system and tracked the movement of the Earth and Moon, explaining phenomena such as day and night. Year 6 pupils have shown high levels of engagement while investigating the heart, blood vessels, and the role of nutrients in the body. They conducted pulse rate experiments before and after exercise and evaluated how different variables impacted results. There is strong evidence of pupils applying scientific method and terminology with precision.

Next Steps:
Looking ahead, we will continue to build on the strengths observed this year by embedding scientific enquiry skills across all year groups and ensuring consistency in planning for progression. We will increase opportunities for outdoor learning and cross-curricular links, while continuing to support staff confidence in delivering engaging, hands-on Science lessons.

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