



WESTFIELD PRIMARY SCHOOL

2022-2023

Science Subject Report

Subject	Science	Date	September 2023
Report prepared by	Katherine Pear		
Overview of the year: September 2022-July 2023			
For Open Evening, we had a visit from the Zoo Lab. The children who visited loved learning facts about the animals and having the opportunity to touch them. In Spring Term, we had a delivery of eggs in EYFS and the children were able to observe the chicks hatching and see how they changed over the first week of their lives. There was great enthusiasm shown by the children when learning about the chicks and their life cycle. At the beginning of Summer Term, the Subject Lead participated in a One-Day Review with Mr Harris. We explored how Science is being taught across the school and spoke to the children about their experience of Science and what they have been learning in their most recent topic. This year the subject lead has undertaken CPD face-to-face with a focus on how to teach the tricky aspects of Science, with an emphasis on exploring ideas through practical activities and how to adapt for different groups of children. The subject lead has also accessed online courses focused on the Intent, Implementation and Impact of teaching primary science using the National College. There has been a focus on vocabulary, with the subject lead creating a list of key vocabulary for each topic for each year group to ensure it supports the progression. Teachers have been creating vocabulary sheets that can be placed in the children's books for them to refer to during lessons/activities. The subject lead has been looking at increasing the use of practical science, reducing the amount of worksheets used and Seesaw has effectively supported this as a tool for evidencing, particularly for some groups of children in our school. The year started off with a STEM-focused Diversity Week with some year groups across the school having the opportunity to learn about scientists and their work. Workshops were arranged for KS1, ahead of the British Science Week, where the children participated in a range of practical activities. It supported the development of the children's Working Scientifically skills. In Year 5, they held a Space day as part of their overarching topic. The children used the VR headsets to explore Space and began to embed the content they have learnt in Science.			
Curriculum: Intent, Implementation, Impact			
Intent			
1. For all children to develop scientific knowledge and conceptual understanding through the learning of biology, chemistry and physics. 2. To enable the children to develop understanding of nature, processes and methods of Science through different types of science enquiries that help them to answer scientific questions about their familiar world. 3. To allow the children to make connections between the scientific knowledge they are being			

equipped with and its uses and implications of science in school and the wider world, today and in the future.

4. To ensure that all children, including SEND, DAP and EAL, have access to a broad, balanced and ambitious curriculum, where they are offered a range of hands-on and motivating experiences.
5. For the children to build on their natural curiosity and be inspired to explore natural phenomena from the beginning of their school experience in EYFS, where all learning starts. This forms a base for their future scientific understanding as they journey through Westfield.

Implementation

Our Science curriculum teaches the children about the world around them. Offering early experiences of Science in schools helps children to develop their problem-solving skills and promotes their natural curiosity in how and why things work. We hope that our Science curriculum encourages the children to not only pursue study in Science at secondary school, but also potentially as a career.

Science teaching at Westfield follows the National Curriculum and is taught through a combination of direct teaching, for an hour a week, and through cross-curriculum opportunities. A comprehensive and clear progression of knowledge and skills for Science across the school has been created for staff to follow. The knowledge and skills statements are built on each year, so that the children's scientific understanding is constantly deepened and learners are being further challenged. Lessons teach children to use scientific vocabulary, develop their knowledge through topics taught and apply their skills through a range of enquiry types. Our Science curriculum does not follow a specific scheme, instead we have access to a selection of resources that allow us to deliver lessons and activities suitable and accessible to the needs of our pupils, which includes Collins Connect. Practical lessons and outdoor learning is encouraged and used to develop of children's Working Scientifically skills.

Science provides opportunities to adapt for children with SEND and EAL as alternative methods of evidencing and practical activities can be offered. Explicit teaching of scientific vocabulary will also help with their understanding of concepts. It also provides opportunities for greater depth children to excel, as they can hypothesise, question, explain, analyse and evaluate scientific research and findings.

How this looks in the context at Westfield:

In Year 2, the children learn about superheroes and make superhero capes as part of DT. The children are supported to apply their scientific knowledge of materials and their properties to decide on which would be most appropriate for their cape.

In Year 5, the children learn about Space as their overarching topic in the Spring Term. One of the children's model texts for Literacy supports the children with knowing the names of the planets and how the Earth orbits the sun, which links directly to the content of the Science curriculum. The children have the chance to write their own space information texts, applying the scientific vocabulary and knowledge they have learnt in an extended piece of writing. Furthermore, in Art, the children have the opportunity to apply their knowledge of planet names and appearances when creating their space pictures.

Impact

The new Curriculum Overview provides details of how Science will be taught across the year groups, both through direct teaching and cross-curricular activities. This enables the Subject Leader to monitor implementation, alongside the QA procedures. Each topic now also has a Knowledge Organiser which lays out the key knowledge and skills that the children should be developing, as well as identifying their previous and future learning and specific vocabulary.

Evidence in Science books and through the use of Seesaw, as an alternative method of recording the children's learning, shows that we are working towards providing a broad and balanced curriculum for all children. There has been less worksheet-based activities, with worksheets accompanying practical 'hands-on' activities as a means for recording.

It has been highlighted through this year's Pupil Voice that the children are highly interested in Science. They have identified activities/topic areas that they have particularly enjoyed and noted the teacher's enthusiasm towards teaching the subject. It has been great to see a number of children discussing careers linked to/in Science that they wish to pursue when leaving school.

Next steps:

- Continue to monitor planning and teaching of Science across the school to ensure lessons taught are consistent, useful and engaging.
- Encourage staff to use practical, hands-on activities where possible. Each topic should cover at least one of the science enquiry types.
- Carry out learning environment walks and pupil voice each term.
- Book workshops to support the children's interest and curiosity in Science.
- Ensure all children have the opportunity to succeed in Science through use of different recording methods.
- Improve teacher confidence in teaching knowledge, skills and enquiry types, especially when the 'tricky bits' are involved.
- Ensure that resources are readily available for teaching each topic and to allow for practical investigations to take place.

5 Key messages of the year:	What Performance Information is monitored? What are the 3 questions are you considering for future developments?
1. Use of Seesaw supports all children in recording their Science learning, especially SEND/EAL and our younger children. 2. Cross-curricular links to Science allow children to recap/apply their knowledge and skills taught through direct teaching. 3. Children's love for Science needs to be fostered, ensuring they still feel excited each time the subject is mentioned. 4. ZooLab workshops have supported the teaching of Animals in Year R and 2. 5. Science vocabulary is important in the understanding of taught concepts and skills.	Key Questions: 1. How do we reflectively assess Science across the school? 2. How can we make Science more engaging and purposeful for all children? 3. How do we ensure there is enough time to cover the Science curriculum each half term?
What is progress like within this subject?	How much funding did you receive this year and what was it spent on?
Teachers follow the skills progression and rationale documents when planning Science lessons. These have been carefully planned and written by the subject lead to ensure that there is progression starting from EYFS, to Year 6.	£1,965.51 General resources STEM workshops Snap Science subscription

At the beginning of each new topic, learning journeys are shared with the children which highlight the links to their previous learning, the series of lessons that they will undertake and how these lessons will then lead on to the future learning. These are stuck into the children's books and displayed on any notebooks so that they can be referred back to. The children learn new vocabulary and skills relating to each Science topic. All new topic words are actively taught by teachers and are stuck into the children's books so that they can be used. Teachers can use the progression of vocabulary overview to know which vocabulary to teach the children within the identified topic, and to see what vocabulary they will have already been taught and what they will learn next. Seesaw provides the children with an opportunity to record their learning, particularly practical investigations and records of what they have done/their findings, through images, videos and voice recordings which is much more accessible for some of our younger children, SEND and EAL.	
How does your subject area help to further develop SMSC (Learning for Life) in and around the school?	How are Fundamental British Values promoted within your subject?
• Developing a love of Science, so children approach lessons with a positive attitude. • Children share their predictions and misconceptions and are treated with respect by others, who understand that we learn at diverse rates. • Giving children real-life experiences of investigations and opportunities for learning outside the classroom, utilising our Wild Garden. • Differentiating methods of recording their predictions/conclusions, supporting the diverse needs of all learners in our classes. • Children are provided with the opportunity for collaborative learning, promoting their social skills.	• Mutual respect - working as a team in investigations, sharing ideas and questions, accepting other's points of view • Individual liberty - opportunities to express their ideas freely
If you could change/ develop one thing in this area what would it be and why?	What will be the three key resources you will be bidding for this year and why?

Ensure all resources are organised and prepared for the children so that teachers have everything they need to deliver practical and engaging activities.	1. CPD for staff 2. Workshops for British Science Week 2023 3. Resources to use for delivering practical, hands on Science activities.
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Subject Web: Subject Web: Why do we teach what we teach?

Every child is entitled to a broad and balanced curriculum. We aim to provide the highest quality of education for all our children, in an environment that is challenging, motivating, disciplined, caring and moral, where children can acquire the scientific skills and knowledge appropriate to their individual needs through the delivery of a creative Science curriculum. This provides opportunities for individuals to acquire knowledge, skills and understanding; promote the moral, cultural and mental well-being and development of our pupils; and prepare pupils for the opportunities, responsibilities and experiences of adult life. Through our pledge we promise a range of exciting learning and life experiences in Science.

6 key skills:

1. Scientific knowledge
2. Investigative skills
3. Thinking skills
4. Understanding and explaining the world around them
5. Developing a sense of natural curiosity
6. Open up the possibility of scientific careers in later life

How do you ensure every skill is taught within your subject?

There is currently a clear skills progression document, Curriculum Overview and Rationale for Science that ensures knowledge and understanding required is covered, alongside the necessary skills development. As of September 2023, a new Overview will be implemented which includes all key skills and knowledge to be taught in each year group, alongside some set activities and identified learning objectives focusing on t

Quality Assurance (recorded in Subject Leader files and using SeeSaw,) provides evidence through book looks and planning, that children are learning skills and not just the topic knowledge.

Topics taught across each year group:

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
1	Everyday materials		Animals including humans		Plants	Scientists and Inventors
Seasons change is revisited across the terms, allowing observations to take place.						
2	Everyday materials		Animals including humans	Plants	Living things and their habitats	Scientists and Inventors
3	Rocks and soils	Forces and magnets	Animals including humans	Scientists/inventors	Plants	Light

4	Electricity	Sound	Animals including humans	Living things and their habitats	States of matter	Scientists and Inventors
5	Changing materials	Living things and their habitats	Earth and Space		Forces	Animals including humans
6	Light	Electricity	Animals including humans	Living things and their habitats	Evolution and inheritance	Child-led investigations

Overview and Rationale for curriculum organisation ensures statutory content for skills and knowledge is covered.

Science will be taught through direct teaching for the equivalent of an hour each week, however there are cross-curricular links to be made to allow application of knowledge and skills to take place.

Describe what a good learner of this subject looks like when they leave Westfield Primary School?

What are the 7 key components of a good learner in your subject?

1. Children to become confident in their relevant and innovative thinking.
2. Children to have a positive and enthusiastic attitude towards the subject.
3. Children to have acquired a range of skills, which they can talk about when presenting their investigation.
4. To have curiosity to learn more through Science.
5. Risk taking- willing to try new things.
6. Understand that fair test is the key
7. Resilient- they won't give up if something is difficult.

What does Fast Feedback look like in your subject? Evidence of children self-assessing their own work and writing a red comment for reflection. Today's learning and the skills/knowledge shown slip is marked each lesson, with the teacher drawing a face for their assessment of the children's work. Teachers are encouraged to use the 'I spoke to my teacher...' stamp at least once a half term.	Is your subject an SDP priority? Has there been school training and / or development related to your subject / specific SDP objectives? Have you taken part in any individual research? What has been the impact of this on the children and staff?
How do you know this has been effective for children's progress? Quality assurance checks by the Subject Leader Evidence of children self-correcting their work and correcting/explaining their conclusion, if appropriate.	Science is not an SDP priority. Subject Folder holds any information pertaining to QAs, subject networks, informal networks, moderation, training PowerPoints etc), research activities.

Evidence of fast feedback policy in place in which pupils' work is seen to improve as a result. 	Subject lead has attended face-to-face training for Teaching the Tricky Bits in Science. Pupil voice ensures the children have a clear understanding of the skills they are learning and the purpose of these. What has been the impact of this on the children and staff? Ideas shared in staff meetings about in school workshop ideas and how to best use the resources we have in school. Teacher confidence in using practical, hands on activities to tackle some tricky areas of Science, e.g. light and sound, evolution. Children are well-equipped to deepen their knowledge and skills in secondary school. Pupil voice and QA: "I like learning exciting things about our world" KS1 "I like doing experiments, we made rockets using a chemical reaction. It was great watching it move" KS2
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