



WESTFIELD PRIMARY SCHOOL

2021-2022

Science Subject Report

Subject	Science	Date	September 2022
Report prepared by	Katherine Pear		
Overview of the year: September 2021-July 2022			
<p>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.</p> <p>The subject lead has also accessed online courses focused on the Intent, Implementation and Impact of teaching primary science using the National College.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>The ZooLab have also visited our school for Open Evening, and this was followed up by visits to Year 2 and EYFS to support the children's learning within the Animals, including human's topic. The children were particularly excited when they were allowed to handle the creatures.</p> <p>We have also 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 few weeks of their lives.</p> <p>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.</p>			
Curriculum: Intent, Implementation, Impact			
<u>Intent</u>			
<ol style="list-style-type: none"> 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 facilitate 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.

Science can be embedded within a range of subjects, as well as our themed weeks throughout the academic year, which means the children have the opportunity to apply their knowledge and skills through more engaging, creative and practical lessons and activities.

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 Curriculum Overview and Rationale Document 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, using the progression of skills and knowledge document, alongside the QA procedures.

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. Outcomes shown through these varying recording methods demonstrate children's acquisition of identified knowledge and skills, as per the progression of skills documents. There is, however, still room for improvement in the range of activities used in teaching Science, particularly including more practical,

hands-on opportunities for the children instead of worksheet-based. Teacher's confidence in teaching the knowledge and skills involved in Science, finding ways to teach the 'tricky bits' is an area to focus on.

Pupil voice carried out this year has demonstrated the children's interest and curiosity for Science. It appears that the children understand the purpose of teaching Science and enjoy finding out about the world around them through the National Curriculum topics. Pupil voice has also highlighted that some children are already interested in pursuing careers that encompass Science.

"I liked testing materials for the bear. It was fun watching it getting wet." KS1

"Every time we do an experiment, we learn something new and exciting" KS2

"I want more science, but more experiments." KS2

"When I grow up, I want to be a doctor. I need to know the parts of the body, I can now name lots of them" KS1

Pupil voice has also highlighted how children would like some further outdoor learning and hands-on experiences.

"I want to do some more exciting experiments." KS2

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?
<ol style="list-style-type: none"> 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 	<p>Key Questions:</p> <ol style="list-style-type: none"> 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?

<p>teaching of Animals in Year R and 2.</p> <p>5. Science vocabulary is important in the understanding of taught concepts and skills.</p>	
<p>What is progress like within this subject?</p>	<p>How much funding did you receive this year and what was it spent on?</p>
<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>	<p>September 2021 - 2022 £1,965.51</p> <p>General resources STEM workshops Snap Science subscription</p>
<p>How does your subject area help to further develop SMSC (Learning for Life) in and around the school?</p>	<p>How are Fundamental British Values promoted within your subject?</p>
<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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

<p>Garden.</p> <ul style="list-style-type: none"> • 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. 	
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.	<ol style="list-style-type: none"> 1. CPD for staff 2. Workshops for British Science Week 2023 3. Resources to use for delivering practical, hands on Science activities.

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 a clear skills progression document and Curriculum Overview and rationale for Science that ensures knowledge and understanding required is covered, alongside the necessary skills development.

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	
Seasons change is revisited across the terms, allowing observations to take place.						
2	Everyday materials		Animals including humans	Plants	Living things and their habitats	

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	
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.

<p>What does Fast Feedback look like in your subject? How do you know this has been effective for children's progress?</p>	<p>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?</p>
<p>Evidence of children self-correcting their work and re-drafting, if appropriate.</p>	<p>Science is not an SDP priority. Subject Folder holds any information pertaining to QAs, subject networks, informal networks,</p>

Evidence of fast feedback policy in place in. Teachers are encouraged to use the 'I spoke to my teacher' stamp once every half term.

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.

Evidence of fast feedback policy in place in which pupils' work is seen to improve as a result.

Independent Work

Verbal feedback given.

Teacher Assisted Work

I spoke with my teacher and ...

moderation, training PowerPoints etc), research activities.

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