St John the Baptist – Science Report to the Governing Body 2023

Science Overview

At St. John the Baptist Catholic Primary School, it is our intention to equip children with the foundations for understanding the world through a scientific lens. Pupils are taught units of work in the specific disciplines of biology, chemistry and physics.

The knowledge content is organised in a coherent way, ensuring learning builds from year to year. We aim to engage children as learners at many levels through linking ideas with practical experience, whilst helping children to learn to question and discuss scientific issues that may affect their own lives.

Priority 1:   Ensure good levels of progress in science for SEND children and other vulnerable groups.
Priority 2: Create a governing role to support science and develop relationships between school and governors.
Priority 3: Ensure science delivery using PKC scheme and assessment system is in place using the new assessment system (FFT).
Priority 4: Ensure that books reflect the quality of teaching in class and are of a high quality in terms of presentation, learning, assessment etc.
Priority 5: Promote science across school - Plan and deliver a successful science week that raises the profile of science, 'science superstars' newsletter contribution and 'scientist of the half term' working display.

Book Monitoring

During Autumn term book monitoring there was an issue raised with coverage.

Year 2 Book Monitoring 10.10.22 Aut 1
Jacob Neath – Human Body

Knowledge organiser at start of unit	✓
Date and learning objective	✓
Variety of activities – diagrams, writing, enquiry	✓
Suitable challenge	✓
Progression of learning based on age/year group	✓
Marked	✓
6 sessions per unit	Not up to date (3/6) LSA cover
End of unit assessment	Not at this stage yet

Year 3 Book Monitoring 10.10.22 Aut 1
Taylor Smyth – Human Body

Knowledge organiser at start of unit	✓
Date and learning objective	✓
Variety of activities – diagrams, writing, enquiry	✓
Suitable challenge	✓
Progression of learning based on age/year group	✓
Marked	✓
6 sessions per unit	Not up to date – 3/6 Gap in book between 12.09-03.10
End of unit assessment	Not at this stage yet

Year 4 Book Monitoring 10.10.22 Aut 1
Georgie Hall – Human Body

Knowledge organiser at start of unit	✓
Date and learning objective	✓
Variety of activities – diagrams, writing, enquiry	✓
Suitable challenge	✓
Progression of learning based on age/year group	✓
Marked	✓
6 sessions per unit	Not up to date – 4/6 Need to catch up on remaining sessions before half term.
End of unit assessment	Not at this stage yet

Year 5 Book Monitoring 10.10.22 Aut 1)
Daisy Hamilton – Human Body

Knowledge organiser at start of unit	Inserted after first session (new teacher)
Date and learning objective	✓ - need to review
Variety of activities – diagrams, writing, enquiry	Writing tasks only (2 sessions)
Suitable challenge	Is the activity the same for everyone? If not how were they adapted to support emerging and challenge exceeding?
Progression of learning based on age/year group	✓
Marked	No marking
6 sessions per unit	Only 2 sessions taught
End of unit assessment	Not at this stage yet

Year 6 Book Monitoring 10.10.22 Aut 1
Joel O'Kelly – Human Body

Knowledge organiser at start of unit	✓
Date and learning objective	✓
Variety of activities – diagrams, writing, enquiry	✓
Suitable challenge	✓
Progression of learning based on age/year group	✓
Marked	✓
6 sessions per unit	3/6 no lessons evidence since 21st September - Need to catch up before half term
End of unit assessment	Not completed unit

This was addressed in one-to-one feedback where Science Lead met with new teachers to outline expectations and during a staff meeting time. This had a successful impact as by the end of the year, lessons were up to date and feedback was much more positive;

This will continue to be an area of concern and focus for the Year 2023/24. Class Teachers were provided feedback and science lessons were taught as chunks in order to 'catch-up' by the end of the school year. This will be a focus of monitoring during the next academic year.

Primary Knowledge Curriculum
Upon reflection of our previous scheme 'Engaging Science', we found that there were gaps in the children's understanding. Elements of the scheme presented a curriculum that made assumptions about the children's life experiences and cultural capital. Last year we researched to find a scheme that was structured, consistent and progressive and found that 'Primary Knowledge Curriculum' delivered all of these aspects. The scheme was put in place for part of the year. This year the focus of Science has been to implement the new scheme and monitor the impact for the first full year of implementation.

The focus of 2023-2024 will be to continue to monitor this impact and to analyse data from the assessment tool 'FFT Aspire'.

Opinions generated from staff interviews offered an insight into the impact of the new 'PKC' scheme of Science at St. John's:

How have you found teaching PKC for the first full year?
"The retrieval part is getting embedded into weekly sessions and you can see children are retaining knowledge because they are exposed more than once or twice."

"As someone who teaches in multiple year groups, it is easy to pick up and continue confidently knowing exactly at which point the children are in their understanding of a particular unit and avoiding leaving any gaps in learning."

"I have noticed the children have improved scientific vocabulary and are confident in their use of it."

**How have you found assessment in Science using FFT Aspire?**
"It is a straightforward tool that generates useful data."

"It makes it clear who may need extra support."

Communication and Language Skills
A continued strategy was a focus on communication and language skills. In order to improve this last year, staff created a 'science working wall' in each classroom. We have continued using this year due to the

positive impact it had on pupils, so much so, displays were also introduced for other subjects. This display highlights the specific vocabulary for each unit of study and is visible to children all day, every day. The vocabulary wall is an interactive aspect that involves children assessing their own understanding and moving words from one side to another once they are confident in their knowledge of the vocabulary. There is also a vocabulary focus included on the whole school 'Mad about Science' display board.
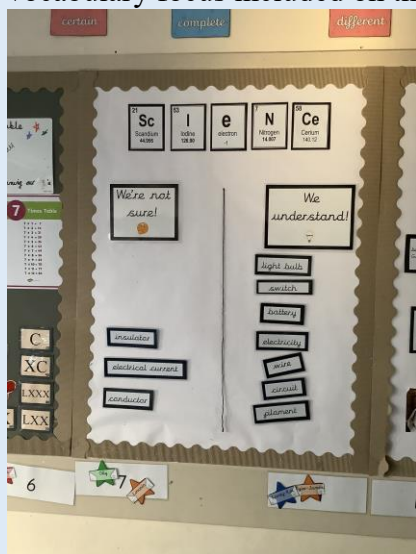
Learning Walk Observations

Strengths identified:
- Enthusiastic attitudes towards learning – children were keen and confident to share their learning and knowledge.
- Use of the vocabulary wall - this is a 'working wall' and it was nice to see vocabulary from this initiative used during the lessons and the wall been referred to.
- Presentation neat and consistent across the school.
- Good examples of where the science fits in to everyday life - we need to make every lesson we teach meaningful.
- Fantastic questioning related to vocabulary and terminology
- Good use of practical resources where appropriate to explain scientific concepts

Some areas for development for next learning walk observations:
- Volume of work (not taught every week in some year groups) and use of an initial assessment which wasn't present in some books. This will be a focus so please ensure that you are evidencing science every week, including retrieval questions as starter task and completing an initial and end assessment to show progress.
- Sequence of units – please refer to the Teams document titled 'info' to ensure lessons are taught in the correct order.

Science Week 2023

Science week took place during Monday 24th April – Friday 28th 2023, which ran alongside 'Living Week'. We live in a world of science so we asked that teachers focused on disciplinary knowledge and working scientifically skills that may link to a current curriculum theme. The key focus of the week was upon investigative learning. The children also participated in an 'Animal VR experience' as part of this week. We decided to select this workshop as we felt it was in-keeping with the ever-evolving technology of society and also provided an exciting learning experience. Here is a snap shot of the learning that took place during the week:

Science Investigations Week

The children in EYFS have done lots of experiments this week! All linked to our theme of jungle animals. We have looked at floating and sinking to help our leaf frog travel back home without sinking, we have investigated and identified footprints of jungle animals based on the different features. We also looked at waterproof materials to help build our animals some lovely jungle homes.

Year 1 have loved the science investigations this week. Making 'Connections' with the functions on a plant. They took part in:
Cress investigation: To understand what a plant needs to grow. The children discussed; What happened? Did they all grow? Why? What do plants need to grow?

Broad Bean experiment: To understand the meaning of germination through observing how the bean sprouts roots and watch how the shoot develops.

Exploring the function of the roots on a plant by using flowers and food colouring. Demonstrating the roots absorb water through the stem to the leaves and flowers.

After all the investigations this week, the children are putting their knowledge into growing their own sunflowers.

Year 2 had fun conducting their science investigations this week.
We decided to test different materials to see if they are waterproof or not.
We then chose the best material to make an umbrella

Science Investigations Week

Year 4 are learning about Elizabeth Anionwu in Science this week.
We did an experiment to understand genetic disease.
The bicarb represents the way sickle cell disease changes red blood cells

Ryan from Year 4 has written a rap about the scientist Elizabeth Anionwu. Scan the QR code to see his amazing performance!

Year 4 have also been making torches for Science Investigation week! They had to prep their equipment and create their own unique torch!

Year 5 have been very busy this week with Science Investigations. We have been investigating the difference friction has on forces.

FRICTION

Year 5 have also been investigating the life and work of Elizabeth Anionwu who inspired us to look at how we inherit certain genes such as the gene for sickle cell anaemia. We created offspring based upon the two parents genetic characteristics!

We were very lucky to have a Zoom call with The Eden Project on the impact of cutting down trees in the rainforest on our ecosystems.

Science Investigations Week

Year 3 have also been investigating the life and work of Elizabeth Anionwu who has inspired us to look at how we inherit certain genes. We have looked and compared eye colours. The children have also discussed how eye colours are genetic.

The children in Year 6 conducted a light investigation and focused on dependent and independent variables. We made shadow puppets and used math skills to make graphs and plot data from the shadow experiment

This is some science work from Nikita in Year 6. She has been using her scientific skills to form a fair test when experimenting with the length of shadows. Using her mathematical skills, Nikita also covered her data into a line graph.

Scientist of the Half Term

This 'working display' is updated each half term. The purpose of the display is to develop children's knowledge, vocabulary and understanding of theory. There is a focus on one scientist (who has made a significant contribution) each half term. Teachers set a homework/lesson focused on this Scientist at the start of each half term and display any work generated. The children are as involved as possible in displaying their work.

Vocabulary focus
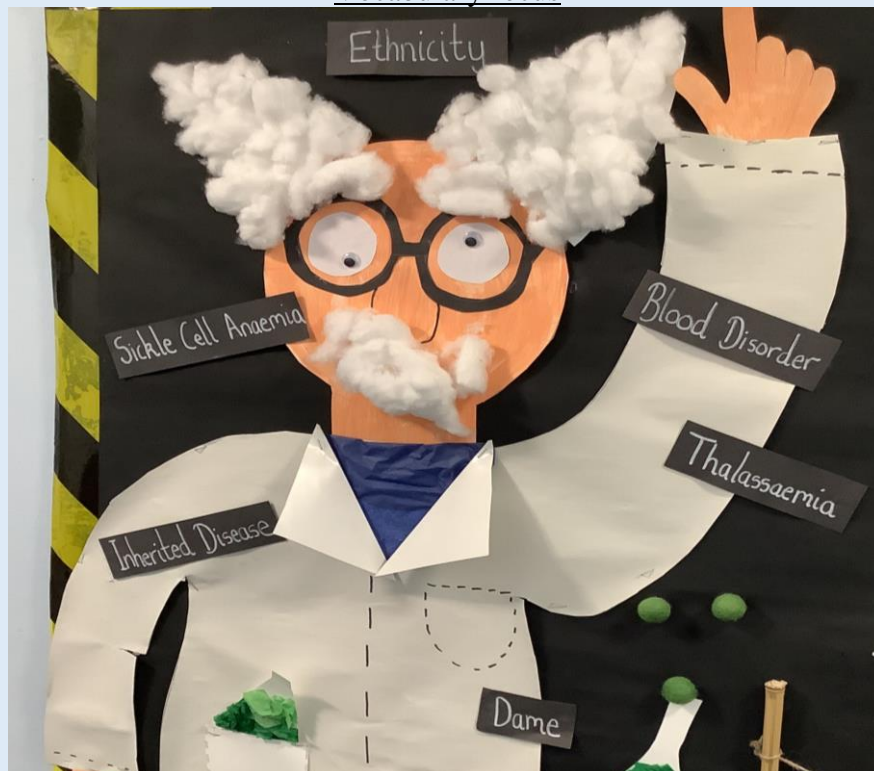
The aim of this implementation is to enhance children's experiences and general knowledge of science that has made an impact in the world around us and develop their cultural capital. This year had a significant impact as this focus resulted in an acknowledgment from one of our focused 'scientist of the half term' Elizabeth Anionwu. Elizabeth played a significant role in the coronation of King Charles of carrying the sovereign orb during the procession. This enabled many of the children at St John's to link a world event with some extra scientific knowledge that had gained at school and share with family and friends.

Newsletter – Science Superstars
Teachers were asked to offer a contribution to the weekly newsletter and also tweet about the science learning that was taking place during their rostered week. The purpose of this was to increase the presence of science online and in the school newsletter.

(Please see below for some extracts)

Science Leaders Support Group

This course involved exploring a range of strategies to audit and lead science in our school, developing my role more fully by being able to identify and promote effective primary science. Tasks involved setting and managing processes, leading change in school to support delivery of the primary science curriculum and also sharing good practice for example free resources; https://www.ogdentrust.com/ , knowledge Matrices from: http://www.planassessmet.com/shop and the useful website https://explorify.uk.

Throughout the course of the year, I virtually met with other science leads and experts to learn more about planning practical approaches to teach all three strands of science develop my understanding of how to identify and address gaps in children's science knowledge, skills & understanding and also highlighted common misconceptions and consider strategies for dealing with them. This group was effective in providing opportunities for collaborative leadership and sharing good practice.

Science Data

Last year, part of the development plan involved a change in how assessments were recorded. As part of a whole school initiative FFT Aspire was brought in. In the academic year 2021/22, teachers input data for the last unit of work completed. Based on data input classes averaged to achieve around 80% on track. This year, teachers input data for every unit taught across the year and this was how the data compared:

Data 2021/22	Data 2022/23
EYFS (understanding of the world): 76%	EYFS (understanding of the world): 75%
Y1: 81%	Y1: 85%
Y2: 76%	Y2: 78%
Y3: 83%	Y3: 83%
Y4: 82%	Y4: 97%
Y5: 82%	Y5: 80%
Y6: 83%	Y6: 87%

Percentages were mostly in line with national data of 79% of children performing to be 'on track' in Science and every year group had an improved number of children working 'on track' (other than Year 5) from the previous year (although previous year had only assessed on unit).